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**Sailing Directions**  
FOR  
**THE RIVER THAMES,**  
FROM LONDON  
**To the Nore and Sheerness,**  
*AND THENCE TO ROCHESTER, IN THE RIVER MEDWAY;*  
ALSO FROM THE NORE,  
THROUGH THE SWIN AND KING'S CHANNEL,  
TO  
*HARWICH, HOLLESLEY BAY, ORFORDNESS, AND YARMOUTH;*  
AND THROUGH THE  
**Queen's, South, and Prince's Channels,**  
TO MARGATE, RAMSGATE, THE DOWNS, AND STRAIT OF DOVER;  
INCLUDING ALL THE  
RECENT ALTERATIONS AND IMPROVEMENTS  
MADE BY ORDER OF THE HONOURABLE CORPORATION OF TRINITY HOUSE:  
PRECEDED BY  
*An Abstract of the New Bye-Laws for better Regulating the Port of London.*

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INTENDED TO ACCOMPANY  
A LARGE CHART OF THE ENTRANCES TO THE RIVER THAMES,  
DRAWN BY

**J. W. NORIE, HYDROGRAPHER,**  
*Author of a New and Complete Epitome of Practical Navigation, &c.*

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**A New Edition,**  
REVISED AND CONSIDERABLY IMPROVED,  
By **J. S. HOBBS, F.R.G.S.**

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PRINTED FOR, AND PUBLISHED BY, C. WILSON,  
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**157, LEADENHALL STREET, NEAR THE ROYAL EXCHANGE.**

1847.

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# CONTENTS.

	Page.
From LONDON BRIDGE to the NORE, including SHEERNESS HARBOUR, and the	
RIVER MEDWAY ... ..	1
Port of London ... ..	1
Abstract of the New Bye-Laws, &c. ... ..	1
Upper and Lower Pools, and Limehouse Reach ... ..	6
Greenwich and Blackwall Reaches ... ..	7
Bugsby's, Woolwich, and Gallions Reaches ... ..	8
Barking, Half-way, and Erith Reaches ... ..	9
Rands, Long, and St. Clement's or Fidler's Reaches ... ..	10
Gray's Reach or Northfleet Hope, and Gravesend Reach ... ..	11
Thames and Medway Canal, and Hope and Sea Reaches ... ..	12
Jenkin Swash, and Nore Sand Buoy ... ..	13
Nore Sand, and Light-Vessel ... ..	14
General Observations on the Tides ... ..	14
A Perpetual Tide-Table for the Lower Pool and Blackwall ... ..	15
Sheerness and the River Medway ... ..	15
Sheerness and Salt Pan Reaches, Colemouth and Kil's Hole Reach ... ..	16
Long, Folly or Pincup, Gillingham, and Short or Sovereign's Reaches ... ..	17
Cockham Wood, Upnor, Chatham and Limehouse Reaches—Tides ... ..	18
From the NORE through the SWIN and KING'S CHANNEL to HARWICH and OR-	
FORDNESS ... ..	18
Description of the Foulness or Maplin and Whitaker Sands ... ..	18
Buzey, Gunfleet, Mouse and West Barrow Sands, Swin Middle or Heaps, Sunk, and the Passages into Harwich ... ..	19
West Rocks, Cork Sand, Cork Knot, Lower and Upper Rough, Shipwash, Baudsey, Whiting and Kettle Bottom Sands ... ..	20
Middle Ground, Flagstone and Cutler ... ..	21
Buoys, Beacons, &c.—Sködebury Ness, Middle and East Buoys, Nore Light-Vessel, Cant and Oaze West Buoys, Blacktail Beacon and Spit Buoy ... ..	21
Mouse Buoy and Light-Vessel; West Barrow; Foulness or Maplin Buoys; Maplin Spit Lighthouse; Swin Middle Light-Vessel; Whitaker Beacon and Spit Buoy; and Swin Spitway South Buoy ... ..	22
Spitway North Buoy, Gunfleet Buoys and Beacon, Middle Hook or Elbow and Heaps Buoys, Sunk Light-Vessel, Sunk Sand Head, Long Sand Head, and S.E. Spit of West Rocks Buoys ... ..	23
Stone Bank Buoy, Cork Ledge Light-Vessel, Lower Rough and South Ship Head Buoys, Shipwash Light-Vessel, Baudsey S.W. and N.E. Buoys ... ..	24
Cutler, Whiting, and Aldborough Knaps Buoys ... ..	25
Directions for Sailing from the Nore through the Swin, &c. ... ..	25
Maldon or Blackwater River ... ..	26
Tides ... ..	27
Directions for Sailing from the King's Channel towards Orfordness ... ..	27
Hollesey or Holesley Bay, to Harwich ... ..	29
Description.—Cutler Shoal, Felixstow and Wadgate Ledges, Platters, Andrews, Cork Knot, Ledge, Spit and Ridge ... ..	29
Halliday Flats, Altar Shoal and Flat, Cliff Foot Rocks, Cod Bank, Glutton, Guard, Bone and Gristle ... ..	30
Walton Flat and Horse Bank ... ..	31
Directions for Sailing from Hollesley Bay to Harwich ... ..	31
Through Goldmer's Gat over the Naze Flats to Harwich ... ..	32
Description.—Naze Flats, Ledge and Bars ... ..	32
Pye Sand, Hallidays, Cliff Foot Rock, Stone and Horn Banks ... ..	33
Directions for Sailing over the Naze Flats to Harwich, the Wallet, &c. ... ..	33
Wallet Bank ... ..	33
Copperas, Tripod, Elbow and Runch Banks ... ..	34



From ORFORDNESS to YARMOUTH ROADS	34
Description.— <i>The Onion</i>	34
<i>Nathaniel's Knoll, Ridge, Aldborough Knapes and Buoy, and Sizewell Bank</i>	35
<i>Sizewell Buoy, Barnard Sand and Buoys and Pakefield Lighthouse</i>	36
<i>Lowestoff Newcome, Inner Lowestoff Shoal, and Inner Channel; Stanford Light-Vessel, and Channel to Lowestoff New Harbour</i>	37
<i>Stanford Channel, Holm and Corton Sands</i>	38
<i>St. Nicholas Bank, Buoys and Light-Vessel</i>	39
<i>South Scroby Buoy</i>	40
Directions for Sailing from Orfordness to Yarmouth Roads	40
<i>Aldborough Bay</i>	40
<i>Southwold or Sole Bay, Stanford Channel, St. Nicholas Gat—Tides</i>	41
From YARMOUTH and ORFORDNESS to the DOWNS	42
Description.— <i>Inner and Outer Gabbards, Galloper Shoal and Light-Vessel</i>	42
<i>The Falls, Long Sand, Kentish Knock and Light-Vessel</i>	43
<i>Goodwin Light-Vessel</i>	44
Directions for Sailing from Yarmouth to Orfordness and thence to the Downs, &c.	44
<i>Tides</i>	45
From the NORE through the FIVE-FATHOMS CHANNEL and over the FLATS to the NORTH FORELAND	45
Description.— <i>Cant, Spile, and Middle Ground</i>	45
<i>Gilman, Spaniard, Spell and Woolpack</i>	46
<i>Last, Horse, Herne Bay, Gore Patch and Margate Sands</i>	47
<i>Cliff's End Bank and Long Nose</i>	48
Directions for Sailing from the Nore to the North Foreland	48
<i>Horse Channel, Gore, Westgate Bay, Margate Road and Lighthouse</i>	49
<i>North Foreland Lighthouse</i>	50
<i>The River Swale, Columbine</i>	50
<i>Whitstable Street, Pollard Spit, and Ham Gat Buoys—Margate Road, &amp;c. to the Swale</i>	51
<i>Tides</i>	52
From the NORE through the OAZE, NOB, QUEEN'S and PRINCE'S CHANNELS, to the NORTH FORELAND	52
Description.— <i>Oaze Sand and Buoys</i>	52
<i>Spile, Red and Shivering Sands, Nob, New or North Nob, and the Girdler</i>	53
<i>Pan Sand and Beacon, and Pan Speck</i>	54
<i>Tongue Sand, South Knoll, Wedge and Margate Sand Buoys</i>	55
Directions for Sailing from the Nore to the North Foreland	56
<i>Nob, Oaze, and Queen's Channels</i>	56
<i>Prince's Channel</i>	57
<i>Bullock's and Thomas's Channels—Tides</i>	58
The NORTH FORELAND to the DOWNS, RAMSGATE, DEAL, DOVER, &c.	59
Description.— <i>Inner Channel; Goodwin Sands; Gull Stream Light-Vessel</i>	59
<i>Bunt Head and Fork Buoys; South Sand Head Light-Vessel; Wrecks on the Goodwin</i>	60
<i>Beacon on the Goodwin; Elbow, Gull Sand, North Bar, and Brake Sand</i>	61
<i>Broadstairs Knoll and Thistle</i>	62
Directions for Sailing from Margate Road, and from Sea to the Downs	62
<i>Through the Inner Channel, Queen's and Prince's Channels, to the Downs</i>	63
Anchorage in the Downs, with Directions for Sailing to and from Ramsgate, &c.	64
<i>Deal Bank; Small Downs; Ramsgate</i>	64
Directions for Sailing towards Ramsgate Harbour in the Night	65
<i>Lighthouse Channel; Cliff's End Channel</i>	66
<i>Tides</i>	67
To sail to the Eastward, or Back of the Goodwin Sands, to the Downs	67
Magnetic Bearings and Distances in Nautic Miles, from the Nore Light-Vessel, and from Buoy to Buoy, through the different Channels to Orfordness, Yarmouth, and the North Foreland	68
Rates of Pilotage	71

# Sailing Directions

FOR

## THE RIVER THAMES, &c.

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### GENERAL NOTICES.

*Throughout the following Work the Soundings are those taken at low water, spring-tides; the Bearings and Courses are Magnetic, or by Compass; and the Distances are in Nautical Miles, of 60 to a Degree. The Variation allowed is  $2\frac{1}{2}$  points west.*

*By a Regulation of the Trinity House, all Buoys placed over or near the wrecks of sunken vessels are nun buoys, painted of a green colour, and marked with the word "Wreck," in order to distinguish them from the regular direction buoys; but these remain only until the wrecks have been removed or dispersed.*

*It has also been determined by the same authority, that in future, gongs are to be used instead of bells on board the light-vessels and at the lighthouses: and that where vanes have hitherto been placed upon buoys, globular balls will be generally adopted; moreover, that the buoys will not hereafter be numbered, but have each the particular name painted thereon.*

*A notice from the Trinity House states, that the red flags formerly exhibited during the day at the mast-heads of the several light-vessels belonging to that Corporation, will be discontinued; and in lieu thereof, each of the said vessels will be distinguished in the day-time by a red ball or balls at the mast-heads, which, in the event of the vessels driving from their proper stations, will be struck.*

*An order, recently issued by the Lords Commissioners of the Admiralty, states, that in order to prevent mistakes, which frequently occur from the similarity of the words starboard and larboard, in future, the word PORT is to be substituted for LARBOARD in H.M. ships or vessels.*

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### FROM LONDON BRIDGE TO THE NORE, INCLUDING SHEERNESS HARBOUR AND THE RIVER MEDWAY.

**PORT of LONDON.**—Before we proceed to give directions for navigating the River Thames, it may not be improper to premise, that its guardianship is intrusted to the Corporation of the City of London and that of the Trinity House. To the first appertains the jurisdiction for the conservancy of the river, its fisheries, &c.; and to the latter is confided the appointment and controul of pilots, the erection of marks, regulation of ballastage, &c.

In consequence of this right of jurisdiction, the Legislature has placed the shipping of the Port of London under the direction of Harbour-masters, appointed by the Corporation of London, and approved by the Trinity House. Agreeably to the above right, the following bye-laws and regulations were adopted March 1st, 1837, by which the day and night duties of the respective Harbour-masters have been strictly defined. Formerly the Harbour-masters were in the habit of resisting the authority of the Port Committee, having been appointed by the Lord Mayor to their situations, and no specific arrangement made to controul them; but, by the new regulations, an effectual authority has been established.

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*Abstract of the new Bye-Laws, Rules, Orders, and Regulations of the Port of London, so far as relates to the navigating, placing, mooring, unmooring, and removing of ships and other vessels, steam-boats, lighters and craft, &c.*

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In the first instance, it becomes the duty of the Harbour-masters, of which there are four (appointed by the Corporation), to enforce the due observance of the Bye-Laws and Regulations. The principal or superintending Harbour-master has the sole and entire controul of the executive part of the harbour and mooring-chain

[THAMES.]

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service, and is responsible for the due performance of the whole of such service: he therefore gives to the other Harbour-masters such orders and directions as he may deem necessary thereto.

The three Harbour-masters, other than the principal Harbour-master, are required to discharge the duties, and reside within the limits, of particular stations: of which stations, the first or upper one extends from London Bridge to Wapping Dock Stairs; the second or central station extends from Wapping Dock Stairs to Limehouse Stairs; and the third or lower station extends from Limehouse Stairs to Bugsby's Hole: but these Harbour-masters are required to assist, in the discharge of the duties of the service, in other parts of the river than their respective stations, when called upon by the principal Harbour-master, or the Committee of the Corporation.

Each of the Harbour-masters is provided with a boat, and every requisite for the use thereof, with a competent number of watermen to row and navigate the same. The boat of the principal Harbour-master is to be distinguished, at all times when on duty, by a small flag, with the merchant's *Union Jack*; the boat of the Harbour-master of the upper station by a *red flag*; that of the Harbour-master of the central station by a *blue flag*; and that of the lower station by a *white flag*.

Neither the Harbour-masters, nor any person employed under them, are allowed to accept any gratuity, directly or indirectly, for any thing done or omitted to be done in the discharge of their respective duties: and no favour or partiality is to be shown in the mooring, unmooring, moving, removing, anchoring, lying, or placing of any ship, vessel, steam-boat, lighter, barge, or other boat or craft; or in any other matter regarding their respective duties; but shall direct the mooring or anchoring thereof in such manner as her size, draught of water, the trade wherein she is employed, and the competency of the moorings, in his or their fair and impartial judgment shall require.

For the purpose of preserving a free passage between Iron-Gate Stairs and Bugsby's Hole, of such width that ships, vessels, and steam-boats, of large dimensions and draught of water, respectively, may navigate up and down the same, without impediment or risk, it is ordained that the width of such passage shall not be less than 300 feet; and in all parts of the river, between the limits above mentioned, wherein such passage shall be between a tier of ships, &c. and the shore, the space of 300 feet is to be accounted from the outermost ship or vessel in the tier to the low-water mark; and in all parts of the river, within the aforesaid limits, wherein such passage shall be in the stream between tiers of ships, &c., the passage of 300 feet shall be accounted from the outer ship or vessel in one tier to the outer one in the other or opposite tier.

And, the Harbour-master upon the first or upper station shall provide the greatest possible accommodation for shipping in the coasting and other trades, between London Bridge and Iron-Gate Stairs; maintaining, as far as practicable, a navigable passage of not less than 200 feet, for ships and other vessels and craft passing up and down that part of the river.

The undermentioned tiers are to be used, exclusively, by collier ships or vessels, which are to be placed as near to the respective shores as the depth of water will permit; and no more shall be allowed to remain moored and distributed thereat, at any one time, than the number specified as follows.

*On the North Side of the River.*—At Cole's Stairs tier, 20 ships; ten with their heads upward, and ten downward. At Bell Wharf tier the same. At Stone Stairs tier, 18; nine with their heads upward, and nine downward. At Ratcliff Cross upper tier, 16; eight with their heads upward, and eight downward. At Ratcliff Cross lower tier, 15; eight with their heads upward, and seven downward.

*On the South Side of the River.*—At Hanover Hole lower tier, 20 ships; ten with their heads upward, and ten downward. At Mill Hole upper tier, the same. At Mill Hole lower tier, 18; nine with their heads upward, and nine downward.

When the whole number of colliers are so placed as aforesaid, the Harbour-master upon the second or central station is to distribute any greater number at the

most convenient other tiers, or parts of the river, and in such further numbers as shall allow of a free passage, before described, so as to preserve the breadth of 300 feet; but if the space occupied by the number of ships, arranged as above, shall encroach upon the width of the free passage, the number is to be reduced.

No collier ships are to be anchored between the tiers before mentioned, nor in any part of the navigable water-way between London Bridge and Limehouse, under a penalty, to be paid by the master or commander, not exceeding £5.


The Harbour-master on the third or lower station is required to detain, at any place between Limehouse and Bugsby's Hole, all vessels coal-laden, or in any part coal-laden, and prevent them from entering the Pools whenever the Harbour-master at the second or central station, or the principal Harbour-master, shall deem it necessary and so direct; and when it shall appear to the Harbour-master on the second or central station, or the principal Harbour-master, that no more vessels coal-laden, or in any part coal-laden, should proceed up the river higher than Limehouse, then the Harbour-master on the third or lower station is to cause a flag, half red and half white, to be hoisted on a flag-staff, provided for that purpose, at or near the Harbour-master's station at Greenwich; and in case any master or commander of any vessel, so laden, shall proceed up the river higher than Limehouse, when such flag is displayed, or shall remove from his moorings without permission, in writing or printing, first obtained from the Harbour-master of the lower station, he shall forfeit a sum not exceeding £10.

Either of the Harbour-masters may give a printed or written notice and direction for the removal, within a reasonable time to be specified, of any vessel or boat which shall, at any time, be so moored or placed as to encroach upon the free passage aforesaid, to such other place as he in his discretion shall see fit; such notice to be given to the person having the command or charge of the said vessel or boat, &c., or left with some person on board thereof; and in case the person having the charge or command shall refuse or neglect to comply with the said notice, he will be subject to a penalty not exceeding £10; and the Harbour-masters are directed to employ persons to remove the said vessel or boat, &c., at the expense of the person having the command, or the owner thereof.

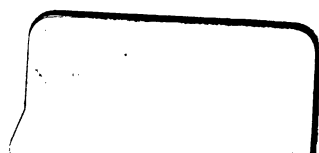
In case any person having the command or charge of any vessel, boat, or craft, or of any raft of timber, or of any masts, spars, or yards, shall lay at, place, make fast or moor the same in any of the in-shore passages, or ferries, or upon the banks or shores of the river, between London Bridge and Limehouse, so as to obstruct the free transit of any other vessel, boat, or craft, he becomes liable, for every such offence, to a penalty not exceeding £5; and the Harbour-masters, with assistants, may remove such impediments at the expense of the owners, or persons having the charge thereof.

It shall not be lawful for any float or raft, or floats or rafts of timber, either singly or together, exceeding 60 feet in length (excepting timber in one length,) and 20 feet in width, to go into and pass along any part of the stream between Limehouse Hole and London Bridge; nor for any float or raft exceeding 40 feet in width, to go into or pass along any other part of the stream between Limehouse Hole and the lowest part of Bugsby's Hole; nor for any two or more floats or rafts to go or float abreast; nor for more than three in one body to go into or pass along any part of the stream between London Bridge and Bugsby's Hole, lengthways; nor for any following float or raft to go within the distance of 300 yards of any other float or raft floating upon the stream within the limits last mentioned: in any of these cases, the owners, or person managing, directing, or towing the same, shall forfeit the penalty of £5.

Every barge, lighter, boat, or other craft, passing along any part of the river, within the limits aforesaid, shall singly and separately pass along the same; and if any two or more barges, &c., lashed or connected together, be found within the limits aforesaid, the owner or persons having charge thereof, shall, for every offence, forfeit 40s. But any luggage-boat, skiff, wherry, or ship's boat, may be lashed to the stern of a barge, lighter, or other craft, not exceeding the breadth of ten feet.



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**THE UPPER POOL.**—That portion of the river from St. Katherine's Docks to the London Docks is, in distance, about  $\frac{1}{2}$  a mile, and the breadth of the river, from low water mark on the one side, to low water mark on the other, is, on an average, about 210 yards; the course of the river here is N.W. by N. and S.E. by S.

The distance from the entrance of the London Docks to Wapping New Stairs, is about 660 yards; and the breadth of the river from low water mark on one side to low water mark on the other, is, on an average, about 240 yards, and lies from W. to N.W. by W., and E. to S.E. by E.

From Fountain Stairs to Church Stairs, on the southern side of this part of the river, there are several tiers of vessels, which lie very close to the shore at low water mark, and generally extend off to  $\frac{1}{4}$  of the distance across the river, in from 8 to 15 feet water, soft mud. The flood and ebb tides set up and down this part stronger than on the other side.

Off the Custom House is a *shoal*; and at Horselydown middle tier a *hard shelf*, on which are only 6 feet. A little above Fountain Stairs is a *shoal*, which almost dries at low water; and a *mud bank*, to a considerable extent, surrounds Wapping Ness; but the depths at low water in mid-channel, between the Tower and Wapping Ness, are from 12 to 16 feet. If bound downward, without the aid of a steam-tug, and with an adverse wind, warp down with the first of the flood; but with favourable winds, wait until nearly high water, so as to reach Cuckold's Point at the beginning of the ebb, and be ready to work through Limehouse Reach.

**THE LOWER POOL.**—From Wapping Dock Stairs to Regent's Canal, below Ratcliff Cross, the distance is somewhat more than a mile, and the breadth of the river, from low water mark on the one side, to low water mark on the other, is, on an average, about 270 yards, and lies from W. by S. to W.N.W.  $\frac{1}{2}$  N., and E. by N. to E.S.E.  $\frac{1}{2}$  S. The flood and ebb tides set strong along the north shore, particularly between Regent's Canal and Shadwell Dock, when it crosses the river between that place and Church Hole.

In this part of the river the colliers are moored, which there discharge the coals brought principally from the north of England and Wales, and which trade, owing to the great increase of steam-navigation of late years, has been much augmented. These colliers are ranged in tiers, according to the rules and regulations of the port, or according to the directions of the Harbour-master on duty.

Just below Hanover Stairs is a *shoal*, which runs down as far as Pitcher's Point; you will avoid it by keeping over toward the opposite shore; below Limekiln Dock is another *shoal*, of 4 feet water, which extends as far as Limehouse Hole Stairs. Between the Horse Ferry and Ratcliff Cross, you may moor along the north side; but in the lower part of this reach the ebb tide runs strong.

**LIMEHOUSE REACH.**—That portion of the river from the New Canal, or West India South Dock, to the Red House at Deptford, is, in distance, nearly a mile, and in breadth, from low water mark on one side, to low water mark on the other, about 300 yards, lying about N.N.E. and S.S.W. The flood and ebb tides set directly up and down this Reach, but stronger on the east side than on the west; the water also is somewhat deeper, and the channel more regular, on the east side, therefore it is more frequented by vessels sailing up and down.

Limehouse Hole is that part of the river which extends from the Regent's Canal to the west entrance of the West India South Dock, and is little better than  $\frac{1}{2}$  a mile in length, its breadth, on an average, being about 270 yards, running from N.  $\frac{1}{2}$  W. to N.N.W.  $\frac{1}{2}$  W., and S.  $\frac{1}{2}$  E. to S.S.E.  $\frac{1}{2}$  E. The flood and ebb tides set strong both up and down the east and north shores, leaving an eddy or slack tide on the opposite side. The shore from the Regent's Canal to Limehouse Hole Stairs is, for the most part, flat, and composed of hard gravel; that towards the canal is more steep, but the water near the shore becomes very shallow.

From Queen Suffrage Wharf to Cuckold's Point, the shore is composed of a *sandy flat*, which runs far out from the point; towards the Horse Ferry it becomes *slightly steeper*, and is still chiefly sand. Close to the shore all the way it is shallow,

but suddenly deepens to 16 and 18 feet, forming a good channel. The flood and ebb tides set directly up and down the river; but stronger on the south side than on the north, and stronger still in the middle of the channel.

The eastern shore of Limehouse Reach is called Mill Wall, from its having been formerly the site of several windmills, but of which only one (and this comparatively in ruins), now remains. Along this part are now established various manufactories of engines, anchors, and cables, and stores of oil, pitch, and other marine necessaries. On this side of the river a *shoal* extends about  $\frac{1}{2}$  over, which makes the channel very narrow between it and the ships at the Red House; on the upper part of it are 6 or 7 feet, and the lower part almost dries at low water. You will avoid it by keeping Deptford New Church just open to the westward of the Clock in the King's Yard. There is also a *shifting bank* near the middle of the Reach. Deptford New Church on with the Stone Wharf, leads down in the best water. From the shore below Cuckold's Point, a *mud-bank* extends  $\frac{1}{2}$  of the way over the river. Abreast of the King's Anchor Wharf, and nearly in shore, is a *shoal*, which almost dries at low water; without it are 16 or 17 feet. At the Red House are 15 feet. From the moorings upwards to a berth near Greenland Dock, you may anchor, and moor with a kedge, in 12 and 11 feet; and in Limehouse Hole are 16 feet.\*

**GREENWICH REACH** lies winding, in a circular direction, from S.S.E. to E.N.E. At Deptford Creek a *shoal* begins, and runs down almost to the west end of Greenwich Town, and nearly dries at low water; outside this shoal are 13 or 14 feet. The Clock House on with the two trees in Deptford Yard, just clears it. Greenwich Upper Shoal lies with Greenwich Church, on with the Boat Yard, and Woolwich Church open to the northward of Greenwich. The mark to lead you clear of it is, Woolwich Church kept just open of Millington's Wharf. Below Garden Stairs, with the Royal Observatory† a little open to the westward of the Hospital, you will not have more than 10 and 11 feet water at low springs; but farther on, with the Observatory open of the S.E. part of the Hospital, and towards the Isle of Dogs, it deepens to 16 feet. On the north shore, off Millington's Wharf, and close in shore, is another *shoal*, which will be avoided, going down, by keeping Deptford Yard Clock open to the southward of the Isle of Dogs Ferry House, until Blackwall Reach comes open. In several berths upwards you may anchor, in 14, 15, and 18 feet; but the best anchorage is, with the Observatory open to the eastward of Greenwich Hospital, in 15 or 16 feet.

**BLACKWALL REACH**, extending from the lower part of Greenwich to the East India Docks, lies in a course from N. by E. to N.E., and from S.W. to S. by W. When you are about to enter this Reach, take care to avoid the *shelf* which lies off Saunders Ness, by keeping the Storehouse Clock, in the Queen's Yard at Deptford, open of the Isle of Dogs, until you open Blackwall Reach. You must afterwards give the point a good berth, to avoid a *shoal* which runs  $\frac{1}{2}$  over the river; and thence be cautious of a *shifting middle ground* near the middle of the Reach, above the Folly House. Abreast of the Upper Jetty is a *shoal*, with 6 or 7 feet water over it; also a *flat* on the west side, opposite the Folly House; to avoid this, keep Millington's clock open of Saunders Ness. The tide, especially the ebb, sets strong in this part across the entrance of the Canal and West India Docks. Vessels may anchor anywhere between the Folly House and the upper end of Blackwall, on the western side, with Millington's Clock on with Saunders Ness, in from 12 to 16 feet water; and on the eastern side, in from 16 to 18 feet, with the said clock open of the Ness.

\* In the centre of this Reach is what was called the Whiting Shoal, which had but 7 feet upon it at low water; but the City authorities have effected its removal, by means of gunpowder.

† On the eastern turret of the Royal Observatory is a ball, about 5 feet in diameter; it is dropped every day from the top of a pole, at the moment of one o'clock, P.M., solar time. By observing the first instant of its downward movement, all vessels in the adjacent reaches of the river, as well as in most of the docks, will thereby have an opportunity of regulating and rating their chronometers. The ball will be hoisted half-way up the pole at five minutes before one o'clock, as a preparatory signal, and close up at two minutes before one. For a description of the machinery, see *Nautical Magazine*, October, 1835, p. 584.



Near the entrance of the West India South Dock is the *Gun Shoal*, where the school-ship formerly was placed; but the latter having been moved into the dock, the Trinity House has given notice, that vessels must be particularly careful to avoid this shoal, which lies somewhat outside of the late berth of the school-ship.

Just below the entrance of the West India Docks, and between it and the East India Docks, is the New Brunswick Steam Wharf, where is also the eastern terminus of the Blackwall Railway. This wharf is 750 feet long, and affords a commodious landing and embarking to the passengers of the various steam passage-boats to and from Gravesend, Woolwich, &c. The upper part of the wharf is occupied generally by the larger steamers, where there are sheds and warehouses for merchandize. The wharf forms an increasing favourite promenade for London visitors during the summer months; and there being a depth of 11 feet alongside at low water, most steamers arrive and depart at all times of the tide.

**BUGSBY'S HOLE** lies about S. by E.  $\frac{1}{4}$  E. and N. by W.  $\frac{1}{4}$  W. From the shore all the way between Bow Creek and Hook Ness, a *shelf* extends nearly  $\frac{1}{3}$  over the river, on which are only 5 or 6 feet at low water. To go clear of this shelf, keep Severndroog Tower, on Shooter's Hill, in one with the westernmost white house in Charlton, bearing S.S.E., until the West India Dock Tavern, at the upper part of Blackwall, comes open to the southward of two trees on the marsh, bearing N.W.  $\frac{1}{4}$  W.

At the lower part of the Reach lies the *Charlton Shoal*, having only 4 and 5 feet over it at low water; Charlton Church on with the sluice, will lead you clear of it. The best berth for anchoring in Bugsby's Hole is, with the two cupolas of Greenwich Hospital open, or Greenwich Church just open of the Hospital, and Woolwich Reach just open; you will then have 13 or 14 feet. There is also good riding just above the Orchard House Causeway, in 14 feet, upon the N.E. shore.

**WOOLWICH REACH** lies E.S.E. and W.N.W., and is generally shoal, having from Bugsby's Hole to where the Queen's ships lie, not more than 9 feet at low water. To the eastward of the Upper Sand Wharf is a *bank*, of 4 and 5 feet, extending downwards nearly to the upper moorings, and  $\frac{1}{2}$  a cable's length from shore. The thwart-mark for the upper end of it is, a large house, standing upon a hill, in one with the corner of the wharf. *Woolwich*, or *Ham Shelf*, is on the north side of the Reach, beginning at Ham Creek, and extending down to where Broad Street, in Woolwich, appears open; it is about  $\frac{1}{2}$  a cable's length from the shore, and has only 3 feet on it. The long mark for this shelf is a large house, in Blackwall, open of Hook Ness; when you bring the Upper Water Gate, or the Broad Street, open, you are below it. The best place to anchor is, with the Bell Water Gate, or the Broad Street, open, in 16, 17, or 18 feet. At the hulk moorings are 15 or 16 feet.

**GALLION'S REACH** lies N.E. by E. and S.W. by W. The upper point of this Reach is shallow, and ought to have a good berth; but when you get below it, you may haul in towards Duval's House, until Woolwich clock is a sail's breadth on with the point; this mark will lead clear of an *extensive shoal*, which begins at the lower part of the Warren, and stretches down along the east shore, almost to the point: it is above  $\frac{1}{3}$  over the river, and has, on some parts, only 4 or 5 feet. The cupola of the new barrack clock on with the old clock in the Warren, bearing S.W. by W., is a good leading-mark through this Reach. Be careful to give Maggot Ness a good berth in passing. About  $\frac{1}{4}$  of a mile below Maggot Ness are four remarkable old trees, called the Tripcock Trees; and between them is a beacon. The best anchorage in this Reach is with the sluice open, in 12, 13, or 14 feet, or below it in 17 feet. You may anchor on the east shore, above the shelf, abreast of the Upper Point, in 12 or 14 feet. There is also good riding between the Lower House and the Creek, in 16, 17, and 18 feet.\*

\* A notice has been issued from the Trinity House, dated 28th March, 1837, stating, that "it being desirable that a certain part of the river, in the lower part of Gallions Reach should be kept free from vessels at anchor, beacons are about to be placed near the bank, on both the Kent and Essex shores, in that part of the river, to denote the limits within which vessels are required not to anchor; and masters, pilots, and other persons having charge of vessels, are hereby cautioned not

**BARKING or TRIPCOCK'S, and HALFWAY REACHES**, bend round circularly, from Maggot Ness to Cross Ness, S.E. by E. and E. by N., and from Cross Ness to Gillingham, or Jenning Tree Point, nearly S.E. by E. Within the first direction is *Barking Shelf*, a dangerous *shoal*,  $\frac{3}{4}$  of a mile in length, on which are only 5, 6, and 7 feet water; its west end is at nearly  $\frac{1}{4}$  of a mile below the mouth of Barking Creek, and its east end at about the same distance above Cross Ness. In the channel on the north side of this shoal, above Barking Point, the depths are only 9 and 10 feet; but below the point they increase to 12, 15, and 20 feet. In the southern channel the depths are 9 to 15 feet. Near the high-water mark, at a short distance above Duval's House, is a beacon, with a lozenge head; and in the field, at some distance within this, is another. These beacons in one, are a leading-mark for sailing down the lower part of Gallions, until two similar ones above Plumstead Magazine, on the south shore, appear in a line; and then the latter, in such direction, lead clear of the south side of Barking Shelf. You now follow the trend of the shore down to Plumstead Magazine, and thence haul more to the northward for mid-channel, and so pass Cross Ness, with the south edge of Purfleet Hill down the river, just open of Jenning Tree Point.

There is good anchorage off Tripcock Trees in 12 and 13 feet.\*

The best mark for anchoring in Halfway Reach is, Jenning Tree Point on with Cold Harbour Point towards the north side; or Barking Church a sail's breadth open of Dagenham Point, in 17 or 18 feet, or a little above the ferry-house, in 21 feet.

In Halfway Reach there is a *shelf*, lying on the northern side, a little below the Breach House, which you will readily avoid by keeping mid-channel. Close to the south shore, a little below the Powder-house, is another *shoal*, which you will avoid by keeping the south side of Purfleet Hill on with Jenning Tree Point, as before directed.

**ERITH REACH** lies about S. by W. and N. by E. In this Reach are *two shoals*, with only 6 or 7 feet on them; the first begins off Jenning Tree Point, and extends more than  $\frac{1}{2}$  over the river, opposite Rainham Creek. The mark for going clear, is Barking Church within a sail's breadth of Dagenham Breach Point, until Rainham Church comes within a ship's length of Rainham Ferry-house, bearing N.E. by E.; then continue your course S.  $\frac{1}{2}$  W., down the middle of the river, observing that the best water is on the Kentish shore; and hauling westward, bring the white beacon in one with Baven Wharf, which is a little below Erith, bearing south: the mark will carry you through the rest of the Reach, clear of the shoals lying off Cold Harbour Point. These shoals extend nearly half-way over the river, and have only 4 or 5 feet water at low ebbs. You may anchor in Erith Hole anywhere between the church and the town, in 3, 4, or 5 fathoms. With the church bearing W.S.W., there is good anchorage, in 4 fathoms.

At the lower part of Erith Town a new steam-boat pier has lately been built, at which the various steam-boats call, to take up and disembark passengers on their passages up and down the river.

When you are in Erith Hole, or off Erith Church, and bound upwards, you should proceed, with the objects before mentioned, until Rainham Church comes on with

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to stop tide, nor come to anchor for any other purpose, within the limits which such beacons will denote."

Since the above notice was issued, some large white boards, with painted black letters, have been erected for the same purpose, sufficiently legible to be read from the river, cautioning all vessels that may anchor within such limits, that they do so at their own risks, and will be responsible for any casualties that may occur; but we are in hopes that a more suitable piece of ground will shortly be appropriated to this purpose, when the present inconvenience will be entirely removed.

\* *Admiralty, Sept. 26th, 1844.*—Notice is hereby given, in pursuance to the Act of his late Majesty King George the Third, cap. 159, sec. 6, that it has been deemed necessary and expedient, that from and after the 10th day of October, 1844, no private ship-of-war, transport, or other private or merchant-ship or vessel, shall receive, or be laden with, or have on board thereof, any quantity or quantities of gunpowder exceeding five pounds weight in the whole, in any place or places in the River Thames above Barking Reach.—By order of the Lords Commissioners of the Admiralty.  
—(Signed) J. BARROW.

[THAMES.]

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Rainham Ferry-house; then steer with this mark on, until you draw near to the north shore, and have passed Jennings Tree Point. When you have brought Barking Church within a sail's breadth of Dagenham Breach House, you may steer for Halfway Reach.

**RAND'S REACH** lies about E.S.E. and W.N.W. In entering this Reach, bring the upper Chalk Wharf, at Purfleet, touching Crayford Ness. This mark will lead you clear to the southward of the *Rand's Hill Shoal*, on which are only 6 or 8 feet at low water. This shoal lies nearly in the middle of the river, and about  $\frac{1}{2}$  down the Reach; the mark for the upper end is, Jennings Tree Point on with the point at Cold Harbour; and the mark for the lower end is, Dartford Church on with the opening of the upper creek on the south shore. The leading-mark through the channel to the northward of the Rand's Hill Shoal, is Lord Eardley's Tower, or Belvidere, on with a white beacon placed near the water's edge, a little below Erith Church. In this channel are 15 and 24 feet. In the channel to the southward of the shoal are from 13 to 22 feet. Ships going upwards through the south channel should, after passing the Rand's Hill Shoal, steer out more towards the middle of the river; because, from the shore at Erith Town runs a *flat*; and also from the point opposite Erith stretches out the before-mentioned Cold Harbour Shoals, extending nearly half-way over the river, which must be attended to by those who pass through the north channel.

**LONG REACH** lies about S.S.E.  $\frac{1}{2}$  E. and N.N.W.  $\frac{1}{2}$  W. Off Crayford Ness a *shelf* begins, and stretches down below Dartford Creek; this is called *Dartford Sand*, extending about  $\frac{1}{2}$  a cable's length from the shore, and uncovered at low water. To avoid this sand, keep the eastern part of Erith Town open of Crayford Ness, until you open Dartford Creek. You can then steer down the Reach as you please, for it is all clear; and anchor in any part, with 5, 6, or 7 fathoms. From the Rand's, the ebb-tide sets strongly upon the Chalk Wharfs at Purfleet, inclining to the eastern shore about half-way down; it then turns towards Greenhithe.

At Greenhithe there is a new pier, suitable for the steam-boats to call at, at all times of the tide, similar to that at Erith, and which bids fair to attract a portion of the summer visitors resorting to the watering-places on the banks of the Thames.

The eastern point of the north shore of Long Reach, opposite to Greenhithe, is named Stone Ness. It is low and marshy; and the bank of the river here is washing away by the continual swell from the numerous steamers shaving too close to the point; but several stakes are driven in to denote where the land has given way; and a red beacon is also erected on the point.

**ST. CLEMENT'S, or FIDLER'S REACH**, lies from N.E. by E. to east, running from Greenhithe, and turning round Broad Ness to the southward. As a *shoal ridge* runs off from the northern point, or Stone Ness, at the lower end of Long Reach, you must give it a berth in passing.

Along the S.E. side of St. Clement's Reach a *shelf* extends about  $\frac{1}{2}$  a cable's length from the shore, on which are only 6 or 7 feet at low water; here an eddy is formed with the flood-tides. The shelf begins about half-way down the Reach, and runs down to Broad Ness, upon the point of which stands a beacon, or land-mark, shaped in the form of a diamond; this beacon is intended to point out the extremity of the shallow water, during the inundations of the land; and vessels passing down the river must leave it on the starboard hand. On the opposite side, or northern part of the Reach, lies *Black Shelf*, which begins near to the creek below St. Clement's, or West Thurrock Church, and extends down to the house above Grays Thurrock. This shelf is steep, and dries at low water. The tides, both flood and ebb, set strongly upon it; and, therefore, going near to it will be attended with danger.

In sailing down from Long Reach, give the point opposite to Greenhithe a good berth; then bringing West Tilbury Church open to the northward of the highest tree, which stands a little east of Grays, bearing about E.S.E., will lead you to Grays, when West Tilbury Church, on with the lower end of the causeway at Grays, will

carry you through the lower part of the Reach. When you are in the channel between Broad Ness and Black Shelf, keep in the tide-way. In every part of this Reach the tide runs very narrow, and there is an eddy on the east side during the flood-tide; therefore, you must not stand far over to the eastward when you are turning up.\*

**GRAY'S REACH, or NORTHFLEET HOPE**, lies about south and north. In this Reach are *two shoals*, one beginning at the upper point, a little below Broad Ness, and extending down the west side; this projects about a cable's length from the shore, and has only 3 or 4 feet on it. The other begins a little above Tilbury Ness, and runs down to the point; it is about  $\frac{1}{2}$  a cable's length from the shore, and has only 5 or 6 feet on it. Gravesend Mill open to the westward of Tilbury Ness, will clear it. As the ebb-tide sets strongly in towards Northfleet Creek, and upon the three upper Chalk Wharfs at Northfleet, you should be careful, in coming down with little wind, to guard against its operation. Between Northfleet and Gravesend the ground is hard and bad. From mid-channel off Grays, proceed S.  $\frac{1}{2}$  W. toward Northfleet Church, until you get the west end of Gravesend open; with the latter bearing S.E., you will enter Gravesend Reach.

**GRAVESEND REACH** lies nearly E.S.E. and W.N.W., having *three shoals* in it, two on the north, and one on the south shore; the first lies close to the north shore, abreast of the second Barways, and below the upper point. Another *shoal*, called the *Oven*, is on the north side, stretching out from the Coal House Point, about  $\frac{1}{2}$  a cable's length, and has only 10 or 12 feet on it. The thwart-mark for this shoal is, the east end of East Tilbury Church on with the Coal House. The shoal on the south side begins just below the New Tavern, and extends about a mile downwards, stretching about a cable's length from the shore, with only 4 or 5 feet on it. The mark for keeping clear of this shoal is, Gravesend Church open to the northward of the Block House. In this Reach the tides are rapid, and the water deep in mid-channel. As the ships which ride in Gravesend Reach generally lie in the middle of the channel, or between it and the south shore, vessels going either up or down should, especially in the night, keep well over towards the north shore. As the tides in this Reach are strong, and the ground between Gravesend Town and Northfleet Hope hard, those anchoring in that part should give their ships a good scope of cable at once, lest the anchors come home, and damage ensue.†

Three steam-boat piers are erected in this Reach, for the accommodation of passengers to and from the steamers plying between the several places and London. The first of these piers, in descending the river, is at the new hamlet of Rosher-ville. The second is the Town Pier, built by the Corporation of Gravesend, and is a handsome structure, 160 feet long, supported on iron pillars; it is furnished with a clock, and at night a red light is exhibited from a column at the centre of the terminus: on landing, it leads to the bottom of High Street. The third is the Terrace Pier (recently constructed), about  $\frac{1}{4}$  of a mile farther, projecting out from the Royal Terrace Gardens and the coach-road leading to Harmer Street, with the Custom-House and Wates's Hotel to the left. The gardens are beautifully laid out, and form a delightful retreat to the subscribers.

\* *New Steam-boat Pier at Grays.*—This pier is 400 feet long, and 8 feet wide. From the indentation of the coast at this point, it offers no obstruction to the navigation of the river, and is approachable with perfect safety at low water, even by vessels of heavy burthen. It is built on piles 20 feet apart, to which the pathway is united by substantial wood-work, the whole bound together by strong iron knees and girders. At the extreme points, or pier-heads, there are two places for landing, approached by flights of stairs, the platform here extending a distance of 60 feet transversely. There are also two hoys or lobbies, the one 280, the other 140 feet from the shore, both of which are to be covered over, and furnished with benches. At the land entrance a neat toll-house has been erected, containing waiting-rooms on either side of the road-way, and a spacious saloon attached for the accommodation of passengers. The village of Grays (where a corn-market is held every Thursday), which is contiguous to the pier, will be approached by an ornamental road, now in progress of formation.

† Two standing-beacons have been set up on the south shore, in the lower part of the Reach, in a line with a wreck which lies therein, about 110 fathoms from the outer beacon.

Opposite to the eastern part of Gravesend is Tilbury Fort, having a strong battery, garrisoned by a small detachment or a company of Invalids. There is a regular ferry to this place from Gravesend.

**CANAL.**—About  $\frac{1}{2}$  of a mile to the eastward of the Custom-House at Gravesend, is the entrance of the Thames and Medway Canal, which is navigable for barges, &c. to Stroud and Rochester, the distance being only  $6\frac{1}{2}$  miles.\*

**THE HOPE REACH** lies about N.E. and S.W. The *Oven Shelf* begins at the Coal House, or Upper Hope Point, extending downwards about  $\frac{1}{4}$  of a mile; it lies close in shore, and dries at low water. You will clear it by keeping Gravesend Mill a sail's breadth open to the southward of Denton Mill, which stands at a little distance from the water below Gravesend; or when East Tilbury Church is in a line with the Hope Point Battery small house, bearing N.N.W., you will be below it, and may proceed down the Hope Reach, steering N.E.  $\frac{1}{4}$  N., towards Fobbing Church, until Mucking Church bears N.W.  $\frac{1}{4}$  N., whence the course into Sea Reach is E. by N.

*Mucking Flat* extends about  $\frac{1}{2}$  a cable's length from the west shore in the bight, and stretches nearly down to Shell Haven.† In working down, you may stand into 5 fathoms on the Essex, and 6 fathoms on the Kentish side. As the flood-tide is slack on the east side of this Reach, and close to the shore is no tide at all, you should be careful, when working upwards, not to stand too far over to the eastward; for if the ship's head gets into less tide than her stern, it may occasion her missing stays, and running on shore. The ebb, near Mucking Flat, sets strongly towards the north shore.

**SEA REACH** lies E.S.E. and S.E. by E.  $\frac{1}{2}$  E., and extends from the Hope to the Nore, the distance being about 13 miles. On the south side from the Lower Hope Point, the *Blythe Sand* begins, and stretches down beyond Yantlet Creek. This sand, abreast of Holy Haven, extends almost half-way over the river, and partly dries at low water, although near its edge, in this part, are  $3\frac{1}{2}$  and 4 fathoms water. In the channel, between this part and Holy Haven, are 6 to 9 fathoms. The leading-mark to get clear of the Blythe Sand in the best water, is West Tilbury Mill, in a line with Chadwell Church, bearing W.N.W.  $\frac{1}{2}$  W.

A new standing-beacon, with two triangles, vertically, has been placed on the north-western spit of the Blythe Sand, upon the dry sand, at low water, with the following marks, viz.:—Pitsey Church tower, in line with a farm-house next eastward of the Thames Haven Cottages, N.N.E.  $\frac{1}{4}$  E.; Hamlet Windmill, its width open to the northward of the Scar House, E.  $\frac{1}{2}$  S.; Fobbing Church N.  $\frac{1}{4}$  W.; Blythe lower beacon E. by S.  $\frac{1}{4}$  S.; Chapman beacon E. by S., southerly; and Cliff Church S.S. W.  $\frac{3}{4}$  W.

On the edge of the Blythe Sand, the greater part of which dries at low water, is another beacon standing on the south side of the river, just below Holy Haven, and nearly  $1\frac{3}{4}$  mile west from the beacon on the edge of the Chapman. The marks are, a conspicuous round-topped tree on Canvey Island, in one with the eastern point of Holy Haven, bearing N.  $\frac{1}{2}$  E.; the western side of the tower of Hadleigh Castle, on with the eastern side of a farm-house, next eastward of the Scar Houses, N.E.  $\frac{3}{4}$  E.; and Shell Haven House N.W.  $\frac{1}{4}$  N.

The *Scars* lie on the north side, beginning at Holy Haven, and stretching down to the Scar Houses; they extend about a cable's length from the shore, and are nearly dry, and steep-to. The haven's mouth kept open, will carry you clear of them. In working down here, you may stand towards the Blythe Sand into 5 or 4 fathoms; but as the north side is very steep, you must not, in standing towards it, come into less than 10 or 9 fathoms. You may always see the edge of the tide, therefore tack before you come to it.

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\* A railroad, in connection with this Canal, is now formed on its southern side. It is said the Canal is to be filled up, and a double line of rails laid.

† Immediately to the westward of Shell Haven is the proposed site of the Thames Haven Docks, which, if ever constructed, will open a communication to London by railroad.

The Chapman begins a little below the Scars, and stretches down beyond Leigh Town; it extends  $\frac{1}{2}$  a mile from the shore, and dries at low water. A beacon, painted red, has been placed upon the Chapman Head in Sea Reach. This beacon is placed with the following marks and compass-bearings, viz.:—A remarkable round-topped tree on Canvey Island, half its apparent width open eastward of a farm-house upon that island, bearing N. by W.  $\frac{3}{4}$  W.; the west side of a white house at Hadleigh, on with the east side of Hadleigh Castle, N.N.E.  $\frac{1}{2}$  E.; and the Blythe lower beacon west. This part of the Chapman is steep-to.

The course from abreast of Holy Haven to Leigh Road will be S.E. by E.  $\frac{3}{4}$  E., the distance about 4 miles; and from thence S.E. by E., 6 miles, to abreast of the Nore light; this latter course will carry you through Leigh Road, between Yantlet Middle Ground and the Nore Sand to the southward, and Leigh Middle Ground to the northward.

Yantlet Middle Ground lies a mile to the north of Yantlet Creek, and extends about  $1\frac{1}{2}$  mile east and west, and has on the shoalest part only 15 feet water.

Leigh, or River Middle Ground, lies directly before the entrance to Hadleigh and Leigh Ray or Haven, and extends in the direction of the fairway more than 2 miles, and at the broadest part is  $\frac{1}{2}$  a mile across; the shoalest part, which is the central, has but 7 feet water on it. This shoal is now marked by two buoys: that on the west end of the shoal (a red buoy), marked "River Middle," lies in 14 feet at low water, spring-tides, with the following marks and bearings:—Shell Haven, in line with the Scar House, N.W. by W.  $\frac{3}{4}$  W.; Prittlewell Church tower, in line with the east end of a grove of trees next west of Hamlet Windmill, N.N.E.  $\frac{3}{4}$  E.; Jenkin buoy S. by E.  $\frac{1}{4}$  E.; and Blythe eastern beacon W. by N.  $\frac{1}{2}$  N. The buoy at the east end of the shoal is striped red-and-white, and now lies in 13 feet at low water, spring-tides, with the mark-tree on Sheppey, on with the high mill at Mile Town, bearing south; Nore light-vessel S.E.; and the Royal Hotel, in line with the west side of the jetty at Southend, N. by E.

The above two buoys on the River Middle lie N.W. by W.  $\frac{1}{2}$  W. and S.E. by E.  $\frac{1}{4}$  E. from each other,  $1\frac{1}{2}$  mile apart; and midway between them are only 7 feet at low water, and less than 2 fathoms at 2 cables' length round the shoalest part.

To the northward of the River Middle is a passage for small vessels, called Leigh Channel; to sail into which from the westward, bring Southend lighthouse in one with the extreme tree on Shoebury Ness, bearing E.S.E.  $\frac{1}{2}$  E.; and when within  $\frac{1}{2}$  a mile of the lighthouse, a S.E. by S. course will carry you out to the Nore. This channel leads up to what is called Hadleigh and Leigh Ray, across Leigh Mud Flats to Leigh Creek; and in order to point out the entrance to Leigh Ray, or Gat, a black buoy, with the word "Spit," has been placed on the east spit of the Chapman Sand, in 6 feet at low water, with Leigh Church tower, half its width open to the eastward of the Parsonage-house, N.W.  $\frac{3}{4}$  N.; Hamlet Windmill, its apparent length open to the eastward of the black Preventive watchhouse on the cliff, N.N.E.; Southend jetty lighthouse S.E.; and West River Middle buoy S.W.  $\frac{1}{4}$  S.

On the south side of the river, to the eastward of the Blythe Sand, lies Yantlet Island and Yantlet Flats, having in general less than a fathom water over them, which extends to the Jenkin Sand, at the distance of  $2\frac{1}{4}$  miles from where the Blythe Sand terminates to the eastward.

**JENKIN SWASH.**—A black buoy, called the Jenkin buoy, lies about  $1\frac{1}{4}$  mile S.S.W.  $\frac{3}{4}$  W. from the River Middle east buoy, and is intended to point out the northern entrance to the swashway, called the Jenkin, lying between the Nore Sand on the eastward, and the Jenkin and Grain Spit to the westward.

**NORE SAND BUOY.**—About  $1\frac{1}{2}$  mile from the Jenkin buoy, and 2 miles N.W. by W.  $\frac{1}{4}$  W. from the Nore light-vessel, is a white buoy, on the northern edge of the Nore Sand, in  $2\frac{1}{2}$  fathoms water, with Southend-terrace bearing N.  $\frac{1}{4}$  W.; the Nore light S.E. by E.  $\frac{1}{2}$  E., distant nearly 2 miles; and the River Middle east buoy N.N.W.  $\frac{1}{4}$  W. At the distance of  $1\frac{1}{2}$  cable north of the buoy are  $4\frac{1}{2}$  fathoms, thence 5, and  $4\frac{1}{2}$  towards the middle of the channel.

**THE NORE SAND**, at the east end of which the light-vessel lies in  $3\frac{3}{4}$  fathoms, extends about N.W. by W.  $\frac{1}{4}$  W., and joins the shallows of Yantlet Flats and Blythe Sand. From about  $\frac{1}{3}$  of a mile from the black buoy of the Jenkin, the Nore Sand commences drying for the extent of 2 miles, to within  $1\frac{1}{4}$  mile of the light-vessel. It then runs off to 10, 15, 18, and 24 feet, to where the light-vessel is moored.

**THE NORE LIGHT-VESSEL** is computed to be about 41 nautical, or 47 statute miles distant from London Bridge. The marks for the vessel are, Minster Church, on the easternmost part of a triangular field, called Mizen Hedge, bearing S.S.W.  $\frac{1}{4}$  W.; the Garrison Point at Sheerness W.S.W.  $\frac{3}{4}$  W., distant  $3\frac{1}{4}$  miles; and Great Wakering Church N.N.E. This vessel, which is painted red, with the word "NORE," in white letters, on each side, exhibits one single lantern light, of considerable brilliancy, elevated about 33 feet above the level of the water, and visible in every direction at the distance of 10 miles; in the day-time a red ball is hoisted at the mast-head, and a gong is sounded in foggy weather.

There is a buoy on the port or larboard side of the channel, bearing from the Nore light N.N.W., distant  $2\frac{1}{2}$  miles. This is the west Shoebury Ness buoy, painted black, and lying in 4 fathoms, with the ruins of Hadleigh Castle, in line with the lighthouse on Southend jetty, N.W.; the semaphore on a hill, south of Mile Town, in line with Mile Town Church, S.S.W.  $\frac{1}{4}$  W.; Middle Shoebury buoy S.E. by E.  $\frac{1}{4}$  E.; Nore Sand buoy S.W.  $\frac{3}{4}$  S.; and the Nore light-vessel S.S.E.

### *General Observations on the Tides.*

The tides flow at the Nore, on the full and change days of the moon, at  $\frac{1}{2}$  an hour after 12 o'clock (mean time), and the water rises about 14 feet. At Holy Haven,  $\frac{3}{4}$  after 12 o'clock, and the water rises 15 feet. At Gravesend, at  $\frac{1}{2}$  after 1, and the water rises 16 feet. At Purfleet,  $\frac{3}{4}$  after 1 o'clock, and the water rises 17 feet. At Woolwich and Blackwall, at 5 minutes after 2, and the water rises 18 feet; and at London Bridge, at 7 minutes after 2, and the water rises about 19 feet. Allowance must, however, be made for the wind, which frequently affects the tides considerably.\* With respect to the setting of the tides, it may be observed, that in all rivers the stream does not immediately turn round the several points; but in passing out of one reach into another, it has a tendency towards the shore opposite that point, round which it must turn by degrees, until it runs in the direction of the new channel. The distance to which the water will go beyond the several points, before it runs exactly in the direction of the new channel, will depend upon the velocity of the stream, the width of that part of the river, the difference of the direction of the reach out of which the water is passing, and that of the reach into which it is entering. Where the river is narrow, the motion of the water rapid, and the difference in the direction of the two reaches considerable, the water will run, with some degree of violence, against the shore which is opposite to the point; and the resistance which it there meets with, from the solid shore, and the rising of the water thereby occasioned at that place, above its due level, will make it run obliquely across the channel again towards the opposite shore, considerably above or below the point, according as it happens to be flood or ebb tide. A due consideration of these circumstances will assist the mariner in his endeavour to prevent such damage as might otherwise arise from the operation of the tides.

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\* The above are nearly the *mean* times of high water; but in the river the tides vary considerably with every full and change of the moon. At the London Docks the times of high water, on full and change days, will vary between 1h. 30m. to 2h. 30m., and in some instances even more.

*A Perpetual Tide-Table for the Lower Pool and Blackwall; showing the mean time of High Water, and the height that each tide will rise to.* By Mr. R. WALKER, Civil Engineer, &c.

D's Age. Time. Rise.				D's Age. Time. Rise.				D's Age. Time. Rise.			
Days.	H.	M.	Ft. In.	Days.	H.	M.	Ft. In.	Days.	H.	M.	Ft. In.
D	2	10	17	10	11	0	14	20	5	25	15
—	2	26	17	—	11	22	15	—	6	2	15
1	2	40	18	11	11	46	15	—	6	30	14
—	2	58	17	—	12	8	15	—	7	4	14
2	3	14	17	12	12	27	16	22	7	37	14
—	3	33	17	—	12	47	16	—	8	17	14
3	3	55	17	13	1	7	16	23	8	58	14
—	4	16	17	—	1	25	17	—	9	35	14
4	4	36	16	14	1	46	17	24	10	10	14
—	4	58	16	—	2	1	17	—	10	42	14
5	5	22	15	15	2	18	17	25	11	8	15
—	5	50	15	—	2	35	18	—	11	33	15
6	6	20	14	16	2	50	17	26	11	58	15
—	6	53	14	—	3	5	17	—	12	19	16
7	7	30	14	17	3	25	17	27	12	40	16
—	8	15	14	—	3	43	17	—	1	0	16
8	8	55	14	18	4	2	17	28	1	20	17
—	9	30	14	—	4	22	16	—	1	37	17
9	10	5	14	19	4	45	16	29	1	55	17
—	10	35	14	—	5	8	15	—	2	10	17

## DIRECTIONS FOR SHEERNESS AND THE RIVER MEDWAY.

VESSELS bound to Sheerness and up the River Medway, will observe, that there is, between the Isle of Grain and the western part of the Nore Sand, a swash-way, called the Jenkin, with 3 and 4 feet in it at low water, which, as the tide rises, serves as a channel for small vessels. In order to facilitate the navigation of those vessels which pass through this swashway for the Medway, a red buoy is laid down, and is to be left on the western or starboard side; the buoy is marked "Grain Spit," and lies in 9 feet at low water, with the Garrison point at Sheerness bearing S.  $37\frac{1}{2}^{\circ}$  W., distant rather more than a mile; the Jenkin buoy N.  $27\frac{1}{2}^{\circ}$  W., 2 miles; the Nore light-vessel N.  $82\frac{1}{2}^{\circ}$  E.,  $2\frac{1}{2}$  miles; and Minster Mill S.  $19\frac{1}{2}^{\circ}$  E., open eastward of the Preventive Station the width of the station. But the best passage for larger vessels into Sheerness Harbour, is between the *Sheerness Middle Ground*, which is marked by a black buoy, and the *Cant*, the latter being an *extensive flat*, extending from the Isle of Sheppey, and drying to a considerable distance from the land; to go clear of this flat, bring the Cockle-shell Hard, on the Isle of Grain, and Garrison point in one; this mark will carry you over the bar, in the best water.

The best anchorage at the Nore is to the eastward and southward of the light, or between Sheerness Middle and the Nore Sand, having from 6 to 7 fathoms, the marks being, Minster Church S.S.W.  $\frac{1}{4}$  W., and the Nore light N.  $\frac{1}{4}$  W. To sail from thence into the Medway, stand to the eastward, and bring on the marks for entering, before you bear-up, Sheerness point being steep-to. Make allowance for the contrary tide, which commonly sets strongly in towards the back of the Garrison.

A black buoy is laid on the southern edge of the Middle Ground, in  $2\frac{1}{2}$  fathoms at low spring-ebbs, and at nearly half-way between the Nore light-vessel and the town, with Queenborough Church a little open to the westward of a large house eastward of Mile Town (formerly the Swan Inn) S.W.  $\frac{1}{4}$  W.; the Garrison point W.  $\frac{1}{4}$  S; the Nore light-vessel E. by N.; and Queenborough and Mile Town Mills nearly in one. At a mile W.  $\frac{1}{2}$  S. above the buoy is the anchorage of the Little Nore.

In proceeding from the Great Nore to the Little Nore, bring Minster Church on the valley, or first depression of the land, to the eastward of the westernmost cliff



of Sheppey Island, bearing S.S.W., and stand on until you get the above mark on; and having entered it, you will observe two black beacons on the shore of the Isle of Grain, and a white beacon and the southern tree farther inland. The southern tree on with the northern or outer black beacon, forms a mark for clearing the Middle Ground; while the inner black-and-white beacons clear the Cant, and lead up to the Little Nore.

The marks for anchoring at the Little Nore are, the outer Lazaretto, at Stangate Creek, open of the Garrison point, and Queenborough Church S.W. This anchorage is about a mile E.N.E. from Sheerness point;  $2\frac{1}{2}$  miles W. by S. from the Nore light-vessel; and, as before observed, W.  $\frac{1}{2}$  S. from the black buoy of Sheerness Middle.

From the town of Sheerness, at the south end of the Queen's Dock and Mast Pond, is a pier, jutting out 300 feet westward; at the *Lapwell* which is a *shelf of mud* between Sheerness and Queenborough, is also a tide pier, 20 feet wide, elevated 2 feet above the oaze, attached to the wharf, and running out 900 feet in a westerly direction from the town, down to the low water mark. No vessel should venture over or too near this pier, there being only 4 feet over it when the tide is up; in day-time its situation can easily be observed, and at night a light is fixed on its eastern end, near the town.

**SHEERNESS REACH** lies N.E. by E. and S.W. by W., being about 2 miles long, and about  $\frac{3}{4}$  of a mile wide, having in the channel from 12 to 10, 6, and 5 fathoms at low water. Vessels wind-bound in the Medway, commonly ride at Blackstakes, or near to the west spit of Queenborough Swale, on which is a buoy, in from 3 to 5 fathoms: this place is called Sheerness Hole. Off this is a *bar*, with 12 feet at low water, extending  $\frac{1}{2}$  a mile from the shore. The western end lies with a beacon on the western corner of the Swale, in a line with Barrow Hill in the Isle of Sheppey, bearing S.  $\frac{1}{4}$  W.

If bound up the Medway, you will remember to give the Isle of Grain side a good berth, as it shoals out to a considerable distance above the Cockle-shell Hard, being in part a *dry mud-bank*. Your course from off the Garrison point to Blackstakes is S.W. by W., where you may anchor, with West Hoo Church (having a *spire-steeple*) open of Shee or Sharp Ness Point. Upon the shore are no chains, the ships in ordinary being moored with cables, in 4 and 5 fathoms water, except the upper one, which lies in 16 or 18 feet. On the ebb a strong eddy runs on the west shore; and at Sheerness there is one with the flood. The shore, from the Garrison point to the pier is steep-to. Mid-channel, abreast of Sheerness, are 12 fathoms, and from thence to Blackstakes it decreases in depth to about 7 fathoms.

**SALT PAN REACH** is 2 miles long, and lies in the direction of E.S.E. and W.N.W. Both sides of this Reach are shoal to a considerable distance from the shore; but the depths mid-channel are from 6 to 10 fathoms. On the northern side is a *rocky patch* off the Salt Pans; and on the western part of the Reach is a small *spot*, of 15 feet, lying in the middle of the river, above Colemouth Creek, on the northern side; off Burntwick Marshes the bank extends from the shore nearly  $\frac{1}{2}$  over the river, as far as Sharp Ness.

**COLEMOUTH** is the southern entrance of Yantlet Creek, which divides the Isle of Grain from the county of Kent. This channel has lately been cleared and deepened, so that small vessels and steamers frequently pass through it from the Thames to the Medway, instead of going round by the Nore, as formerly.

Opposite Sharp Ness, on the north side, is Stoke's Shoal, with from 7 to 8 feet over it: this is an Oyster ground, stretching  $\frac{1}{2}$  across the river, and running from Colemouth to the entrance of Stoke Creek. From the anchorage at Blackstakes, you may proceed N.W. by W.  $\frac{1}{4}$  W., until Colemouth Creek comes open; thence steer towards Sharp Ness, keeping the beacon point open of Oakum Ness, in Kit's Hole Reach, open of Sharp Ness.

**KIT'S HOLE REACH** is more than a mile long, running S.W. and N.E.; here, on a point of land, called Oakum Ness, stands the above-mentioned beacon. In sail-

ing up the river, you should steer from Shee or Sharp Ness, directly towards the beacon point, bringing Rainham Church to bear nearly S.W.  $\frac{1}{2}$  W., which will clear you of the *oazy flat* off East Hoo Creek.

On the eastern shore a *sandy flat* extends all the way from Shee Ness to Otterham Creek; called the *Homaaze*; here stands a basket-beacon. Abreast of the beacon, on the opposite shore, is *Bishop's Oaze*, which is steep-to, and dries at half-tide, the mark being, Hoo Church, a handspike's length open of Bishop's Ness. Here is the entrance or channel into Barlett, South Yantlet, and Rainham Creeks, having 3 fathoms in the beginning, but decreasing as you get farther in. There is a passage through South Yantlet Creek, with 1 or 2 fathoms water, steering mid-channel, which passage carries you into Folly Reach.

**LONG REACH** extends E.N.E. and W.N.W., being about 2 miles in length; the leading-mark through it is, Minster Church, in Sheppey, a sail's breadth open of the beacon upon Oakum Ness; or Frindsbury upper mill on with a white house a ship's length to the southward of Upnor Castle. The south shore, from Bishop's Ness to the N.E. point of Folly Reach (called Daunet Ness) is steep, and dries at half-tide; but from the opposite shore, from Beacon Point to the fort, or Folly Point, at Hoo Ness, a *sandy flat*, called the *Muscle Banks*, extends, which narrows the channel in the upper part of Long Reach very considerably. Part of this dries at low water; but the upper part has 4 or 5 feet water over it. It will be avoided by the foregoing marks. In the fairway are from  $2\frac{1}{2}$  to 5 fathoms water.

**FOLLY, or PINCUP REACH**, lies about S.S.W. and N.N.E., for nearly  $\frac{3}{4}$  of a mile; it is bounded on the west side by a *long sandy flat*, running from Oakum Ness to Hoo Ness. At the upper end of the Reach is a *middle ground*, having in one or two spots only 2 feet over it at low water. Upnor Castle just clear of Hoo Ness is the mark for its south end, and the S.W. point of Bishop's Marsh, in a line with the shore of Nor Mouth, is the mark for its north end. All the marshes on the east side of the Reach are steep-to, and may be approached with safety, but the flats on the western side dry: the flood sets upon the west shore, and the ebb opposite, running strongly into Yantlet Creek. Within the channel, between the middle ground and east shore, are from 3 to 4 fathoms; but between the middle and west shore, not more than 6 feet, becoming narrow as you advance upward. To sail through eastward of the middle ground, keep near the east side, and steer about S. by W., until the easternmost windmill, on the south shore, comes on with a barn, on which there is a target, painted in a very conspicuous manner, bearing nearly S.W. by W.; this mark kept on, will lead to the S.E. of the middle ground; and when Frindsbury upper mill comes a little open of Cats Ness, you will be to the southward of it. In the lower part of the Reach there is good riding, in 18 feet water.

**GILLINGHAM REACH** lies W.N.W. and E.S.E., being  $1\frac{1}{2}$  mile long; the northern shore is bold from Hoo Ness to Cats Ness; but the southern shore is flat and shallow; and from St. Mary's Creek, by Digg's Hole, until you come to the bight, somewhat to the eastward of Gillingham Creek, the sand has but 6 and 8 feet water over it. In the lower part of this Reach is a *sandy shoal*, of 6 and 7 feet water. The deepest water in this Reach is between Cats Ness and the shoal, where are 16 and 18 feet: there are also 18 feet below the shoal, and abreast of Hoo Ness Fort. In proceeding up this Reach, steer W.N.W. half-way up along the northern shore, until you advance towards Gillingham Fort, where the best water is to the southward; and when it bears W. by N., steer towards it, until you open the next Reach.

**SHORT, or SOVEREIGN'S REACH**, runs about N. by E. and S. by W. It is hardly a mile long, and much narrowed by a *sandy flat* on each side. There is also a *middle ground* on the eastern side, with 8 and 10 feet over it, having a very narrow channel between it and the Cats Ness shore. Within this channel a *sandy flat* extends from Cats Ness towards Cockham Wood. Cats Ness is bold-to; but the above flat runs out 30 fathoms into the river. The western side is buoyed so as to mark the best channel; and here three-decked ships are commonly moored. There is but little tide, its strength escaping towards Finsborough or St. Mary's Creek.

**COCKHAM WOOD REACH** runs N.W. by W. and S.E. by E., being  $\frac{3}{4}$  of a mile long. Its southern shore is steep-to from Finsborough Ness to the western point of the marsh; and its northern shore is a *sandy flat*, which shallows gradually: therefore, in sailing up or down this Reach, steer nearer to the Finsborough side, by which means you will go clear, and in the deepest water. The buoys lie mid-channel, in 15 and 16 feet at low water. At the western end of this Reach, on the northern shore, is the London Stone.

**UPNOR REACH** turns round from Cockham Wood Reach, in a south-westerly direction. Its eastern shore is flat; and off its western side, when past Upnor Castle, is *Midshipman's Hard*, a kind of *causey* running out from the shore. Off the middle moorings the east shore is flat to the point; above which, distant about 20 fathoms, lies a *shoal*, of 7 and 8 feet water, from Upnor Reach to the town of Chatham, the eastern shore being occupied by the Royal Dock-Yard, &c.: the western shore is a low marsh, upon which the flood sets, and the ebb opposite.

**CHATHAM REACH** lies S.S.W. and N.N.E., and the depths in mid-channel are from 12 to 16 feet, the buoys indicating the best water. From Finsborough Creek to Chatham Jetty the shore is flat, and dries; but the lower shore is bolder, and the buoys mark out the proper course. The depths are from  $2\frac{1}{2}$  to 3 fathoms to the Ordnance office, above the dock-yard; but in the bend of the river, along the town, they suddenly diminish, and form a *bar* across the river, of only 4, 5, and 6 feet at low water.

**LIMEHOUSE REACH** lies nearly in a north and south direction. Having passed the flat before spoken of, you will sail on, in from 18 to 12 feet, about a mile. The starboard shore is low and marshy; and on the port or larboard side stands the city of Rochester. Having arrived at Rochester Point, you will enter Bridge Reach, Rochester Bridge being  $\frac{1}{4}$  of a mile within the point; from the northern side a *mud flat* runs out. The river here is less than  $\frac{1}{4}$  of a mile wide, and has from 16 to 11 feet within it.

Vessels drawing 20 feet water, and bound down the Medway from Chatham, should not get under sail unless the wind be west, W. by N., W.N.W., or N.W. by W., and at the last quarter flood, spring-tides.

**TIDES.**—In the Medway the tide rises from 14 to 20 feet, the least rise being at the entrance; at Rochester Bridge it is high water at 1 o'clock (mean time) full and change, and at Sheerness at 40 minutes after 12.

## FROM THE NORE, THROUGH THE SWIN AND KING'S CHANNEL, TO HARWICH AND ORFORDNESS.

*Description of the Sands, Buoys, and Beacons from the Nore, through the Swin and Sledway, and to Orfordness.*

The passage from the Nore and through the Swin and King's Channel, is bounded by the *Foulness* or *Maplin*, the *Whitaker*, *Buxey*, and *Gunfleet Sands* on the northern side; and the *Mouse*, *Barrows*, *Middle*, *Heaps*, and *Sunk* on the southern side.

**THE FOULNESS or MAPLIN SAND** is an extensive *flat*, or continuation of sands which run off the northern shore of the Thames, from Leigh and Southend to the eastward, so far as the entrance to the River Crouch; it chiefly dries, and is covered at about  $1\frac{1}{2}$  hour flood. Its breadth about Shoebury is a mile from shore; off Foulness Island it is  $3\frac{1}{2}$  miles broad; and off Crouch Point, the entrance of the river, its breadth becomes almost 5 miles. Its eastern edge is steep, and pointed out by buoys, beacons, and a lighthouse, which will be described hereafter.

**THE WHITAKER** is an extension of the ridge, or north part of the Maplin, from which it runs off in an easterly direction, and has a red buoy lying near its

eastern edge. Between this buoy and the Maplin is a swashway, or passage for small vessels into the River Crouch, of 9 and 12 feet.

**The BUXLEY** is a large *sand*, which is covered at  $3\frac{1}{4}$  hours flood; it runs parallel, in an east and west direction, to the north part of the Maplin, and is  $1\frac{3}{4}$  of a mile wide in its broadest part, forming the northern boundary to the entrance of the River Crouch. Its length is 5 miles. There is a black buoy placed at its western end; and its eastern part forms the spitway from the Swin to the Wallet, &c., which spitway is pointed out by two buoys.

**The GUNFLEET** is an extensive *sand*, running from the spitway, in an E.  $\frac{1}{2}$  N. direction, full 12 miles. Its breadth is from 1 to  $1\frac{1}{2}$  mile. Off its western end are the two buoys just mentioned, placed as a guide through the Spitway; at its eastern extremity is a black buoy, with a staff and ball; on its south-eastern edge stands a beacon: and midway between this beacon and the black buoy, is a buoy, coloured black-and-white, in circular bands; and nearly midway between the beacon and the buoy of the Spitway, is a buoy, striped red-and-white, and marked "S.W. Gunfleet." Several parts of this sand become dry at low water. At the N.W. part there is a *patch*, called the *West Knock*, of considerable extent, which is covered at 2 hours' flood; and abreast of the beacon is a still larger part, called the *East Knock*, which is covered at  $2\frac{3}{4}$  hours' flood: between these are other places, drying at low springs. The northern edge of this sand forms the southern boundary of the Wallet; and its southern edge is the northern limit of the East Swin, or King's Channel, of which these sands lie all on the north side.

**The MOUSE** has now become the western extremity of the Barrows, and is distinguished by a black buoy, near which is a light-vessel, exhibiting one light.

**The WEST BARROW** is that part of a very extensive *flat*, which forms the southern boundary of the West Swin; it extends from the Mouse buoy full 4 miles, is  $\frac{3}{4}$  of a mile wide, and dries, being covered at  $2\frac{1}{4}$  hours' flood. On its northern edge is a white buoy, lying E.N.E.  $\frac{1}{4}$  E.,  $2\frac{1}{2}$  miles from the Mouse buoy. From the north-eastern part of this shoal the *Barrow Flats* run north-easterly, nearly 10 miles, terminating in two points near the buoy of the Heaps. The Barrow Flats have several parts upon them which dry at low water, and are all over shallow and dangerous; the north-western edge forms the channel between the Flats and the Heaps and Middle, and has on it a *knoll*, called *East Barrow Head*, nearly a mile in extent, covered at about  $1\frac{1}{2}$  hour of the flood. Its south-eastern edge is divided from the Knock John by the Barrow Deeps: these flats are about 3 miles broad.

**The SWIN MIDDLE, or HEAPS**, form a narrow curved *sand*, 6 miles long, marked out by 2 buoys and by a light-vessel, showing a revolving light, stationed at its western end. The channel between it and the Barrow Flats is called the Middle Deep, and has from 6 to 9 fathoms in it. The passage to the northward is the one commonly used, called the East Swin, or King's Channel, in which there is a *middle ground*, with 5 to  $6\frac{1}{2}$  fathoms over it; also a *knoll*, called the *Knot*, lying mid-channel between the Middle Ground and Heaps, with 4 and  $4\frac{1}{2}$  fathoms on it.

**The SUNE** is a continuation of the Oaze and Knock John, running in an E.N.E. direction; it is narrow with numerous dry *patches* upon it, and nearly parallel to the Gunfleet, at 3 or 4 miles' distance, with from 8 to 12 fathoms between them. It terminates in a point about S.E. by E.  $\frac{1}{2}$  E., distant  $5\frac{1}{4}$  miles from the Gunfleet beacon. Off its head, distant nearly  $1\frac{1}{4}$  mile N.N.E., is a light-vessel; and on the sand head is a chequered red-and-white buoy.

**The PASSAGES into HARWICH** and towards Orfordness, are formed by the following *shoals*:—the *West Rocks*, *Cork Sand*, *Ledge*, and *Knot*, the *Upper* and *Lower Rough*, the *Shipwash*, the *Baudsey*, the *Kettle Bottom*, the *Whiting*, and the *Cutler*, besides several other *shoals* inside of these.

Between the West Rocks Shoal and the Gunfleet is a channel into the Wallet, called Goldmer's Gatway, about  $1\frac{1}{2}$  mile wide, and having 5, 6, and 7 fathoms. There is also a channel between the West Rocks and the Cork Sand; but it is very narrow, with only 3 feet in it, and too dangerous for a stranger to attempt.

**THE WEST ROCKS** are a dangerous and large cluster, lying directly before the entrance to Harwich, some parts becoming nearly dry at low water. They extend from the Naze Flats to the black-and-white buoy, which is placed on a spit at their eastern end, their breadth being 2 miles. On the buoy, which lies in  $3\frac{1}{2}$  fathoms, are painted the words "West Rocks."

**CORK SAND.**—The east end of the Cork Sand lies N. by W. from the east part of the West Rocks, distant nearly  $3\frac{1}{2}$  miles; it thence extends S.W. by W., about 2 miles, is narrow, and a considerable part dries at low water. At a mile N. by W.  $\frac{1}{2}$  W. from the east end of the Cork Sand, lies the south end of the Cork Ledge; it thence extends about a mile, and is nearly  $\frac{1}{2}$  of a mile broad. There is  $1\frac{1}{2}$  fathom on it. On the north side of the Cork Ledge a light-vessel is stationed, carrying a bright revolving light.

**THE CORK KNOT** is a *rocky shoal*, lying about  $1\frac{1}{2}$  mile from the Cork Ledge, and apparently is joined to it. It bears N. by E. from the buoy of the West Rocks, distant 4 miles, and has over it 18 and 19 feet.

**LOWER ROUGH.**—N.E.  $\frac{1}{2}$  E.,  $2\frac{1}{2}$  miles from the east spit buoy of the West Rocks, is the east end of the Lower Rough, a *reef*, of 2 to 3 fathoms, running about  $1\frac{1}{2}$  mile in a N.N.W. direction. Its eastern side has a red buoy upon it, lying in  $3\frac{1}{2}$  fathoms water.

**UPPER ROUGH.**—In nearly the same direction, and nearly midway between the West Rocks and the Lower Rough, lies another *rocky shoal*, called the *Upper*, or *West Rough*, having on its N.W. part only 2 fathoms. The mark for this is, Arwarton Church on with the south-western part of Landguard Fort. To the north-eastward of the Upper Rough, lie the Shipwash, Baudsey, an Whiting: the two former of these sands forming the eastern side of the channel, called the SLEDWAY; while the West Rocks, Rough, and Cutler, are its western boundaries.

**THE SHIPWASH** is a long and narrow *sand*, having at its S.W. extremity a spiral beacon-buoy, of large dimensions; it is coloured black-and-white, in horizontal stripes, and surmounted by a black ball, and near its N.E. end a light-vessel. These lie N.E.  $\frac{1}{2}$  N. and S.W.  $\frac{1}{2}$  S. from each other, distant 9 miles; and about midway between has lately been placed another buoy, on the N.W. side of the sand; it is coloured black-and-white, in horizontal stripes, and lies in  $6\frac{1}{2}$  fathoms. Some parts become dry at low ebbs, and both sides are steep. This is a dangerous bank to vessels coming from the offing, as the depth of your soundings give no indication of your approach towards it; and there are 6, 7, and 8 fathoms close to its outer edge. The light-vessel is intended for the use of ships of great draught of water passing through the channel between the Baudsey and Shipwash Sands, called the SHIPWAY, instead of going into Hollesley Bay.

**THE BAUDSEY SAND** is almost 4 miles long and  $\frac{3}{4}$  broad near its S.W. end; upon it the depths of water are irregular, but nowhere have been found on it less than 12 feet at low water, although, perhaps, on some of the knolls there may be less. Upon the S.W. part lies a black-and-white chequered buoy, and upon the Bald Head, or N.E. end, lies a black buoy. The extension of this sand to the north-eastward is now greater than formerly, for with Orford low light and Aldborough mill in one, bearing N.N.E.  $\frac{3}{4}$  E., you will pass over it, in  $3\frac{1}{2}$  and 4 fathoms. The shoalest water is near its S.W. end, there being only 2 fathoms, commencing near the chequered buoy, and extending thence north and north-easterly nearly a mile. Vessels should, therefore, be cautious of approaching too near this part of the coast. Between the north end of Baudsey Sand and the Shipwash, the channel is about 2 miles wide, in which are 8 or 9 fathoms.

**THE WHITING** is a narrow slip of *sand*, lying N.E. by E.  $\frac{1}{2}$  E. and S.W. by W.  $\frac{1}{2}$  W.,  $3\frac{1}{4}$  miles in length, and having three white buoys upon it, the northernmost buoy with a staff and ball. The two lights of Orfordness in one, lead just on the inner edge of the sand, and also clears the Cutler; but the low light must be kept to the westward of the high light, in working through Hollesley Bay.

**LETTLE BOTTOM.**—Between the west end of the Whiting and Baudsey Sand

is a *knoll*, called the *Kettle Bottom*, with only 2 fathoms on it, lying N.N.E.  $\frac{1}{2}$  E., distant  $1\frac{1}{2}$  mile from the S.W. buoy of the Baudsey. From this knoll a *shoal* projects about  $\frac{1}{2}$  a mile to the northward, with  $3\frac{1}{2}$  and 4 fathoms on it; and continues to the southward, with the same depths, till it joins the Baudsey Sand, having on each side 6 and 7 fathoms water. The channel between them is about  $\frac{2}{3}$  of a mile wide. Between the Kettle Bottom and the Whiting are 6 and 7 fathoms, and a good passage, keeping within  $\frac{1}{2}$  a mile from the buoy of the Whiting, or the sea-mark, near the north end of Baudsey cliff, W.N.W.  $\frac{3}{4}$  W. The north-east end of Baudsey Sand is opposite to the middle of the Whiting; the channel between them is about 2 miles wide, with 8 and 7 fathoms in it. The mark to carry you through this channel, is Felixstow Church on with the rising part of Felixstow cliff.

**THE MIDDLE GROUND** is a *sandy flat*, extending from the shore at Orford Haven towards Orfordness, and was formerly distinguished by a buoy at each end.

**THE FLAGSTONE** is a *rocky patch*, lying between the S.W. part of the Whiting and Hollesley Middle Ground; it runs in a direction parallel to the Whiting, and has nowhere less than 5 fathoms over it.

**THE CUTLER** is a *rocky shoal*, lying about a mile from Baudsey cliff. The lights of Orfordness in one, will lead over its outer edge. A black buoy is now placed near its S.W. end, in  $4\frac{1}{2}$  fathoms, with Baudsey Church on with a white house seen above Baudsey cliff, bearing N.  $\frac{1}{2}$  E.; and Orfordness low light a little open to the eastward of the high light. It extends S.W.  $\frac{3}{4}$  S. and N.E.  $\frac{3}{4}$  N., being  $1\frac{1}{2}$  mile in length, and about  $\frac{1}{2}$  a mile in breadth.

### *Buoys, Beacons, Light-Vessels, &c.*

**SHOEBURY NESS WEST BUOY** (black) lies in 4 fathoms, to be left on the port or larboard side when outward-bound. Its marks are, the ruins of Hadleigh Castle in line with the lighthouse on Southend Jetty, N.W.; the Semaphore on a hill, south of Miletown, in line with Miletown Church, S.S.W.  $\frac{1}{4}$  W.; Middle Shoebury buoy S.E. by E.  $\frac{1}{4}$  E.; River Middle east buoy W.N.W.; Nore Sand buoy S.W.  $\frac{3}{4}$  S.; and the Nore light-vessel S.S.E.

**SHOEBURY MIDDLE BUOY** (black) lies in 3 fathoms, with Hamlet windmill in line with the west end of Southend terrace, N.W.; Queenborough windmill in line with the highest windmill at Miletown, S.W.  $\frac{1}{4}$  W.; and the Nore light-vessel S. by W.  $\frac{1}{2}$  W.

**NORE LIGHT-VESSEL** (already described, page 14,) rides in  $3\frac{3}{4}$  fathoms, to be left to the starboard.

**SHOEBURY EAST BUOY** (black) lies in 5 fathoms, to be left on the port or larboard side. Its marks are, a white windmill, inland, in line with the third house eastward of a long barn on Foulness island, N.N.E.; Prittlewell Church on with the third building eastward of Shoebury Preventive Station-house, N.W.; and Blacktail beacon E.  $\frac{1}{4}$  N.

**CANT BUOY** is white, and lies upon the edge of the sand, in 4 fathoms, to be left on the starboard side. The marks are, Shottenden mill just open of the high land of Sheppey, bearing S. by W.  $\frac{3}{4}$  W.; the Nore light-vessel N.W. by W.  $\frac{1}{4}$  W.; and the west buoy of the Oaze E.  $\frac{1}{2}$  N., distant  $1\frac{1}{2}$  mile.

**WEST BUOY of the OAZE** is red, with staff and ball, and lies in 3 fathoms, on the starboard side. Its marks are, the Nore light-vessel W.N.W.  $\frac{1}{2}$  W., distant about  $4\frac{1}{2}$  miles; the Blacktail beacon N.N.E.  $\frac{1}{4}$  E.; and the buoy of the Spile S.W. by W.  $\frac{1}{2}$  W.

**BLACKTAIL BEACON** is upon the Maplin Sand, and to be left on the port or larboard side. Its marks are, the east side of Canewdon Church tower touching the west end of the buildings at Havengore farm, bearing N.N.W.  $\frac{3}{4}$  W.; the Mouse buoy E.S.E.  $\frac{1}{4}$  E.; and the Maplin chequered buoy E.  $\frac{1}{4}$  N.

**BLACKTAIL SPIT BUOY**.—The Blacktail Spit of the Maplin Sand in the Swin Channel having grown up in a W.S.W. direction from the Blacktail beacon.

a buoy, coloured black, has been placed upon the said spit, in  $5\frac{1}{2}$  fathoms at low water, spring-tides, and with the following marks and compass-bearings, viz.:—

Shottenden mill, in line with a remarkable clump of trees next west of **Harty Church**, S.S.W., westerly; **Prittlewell Church**, open to the northward of a brick-built house, twice the width of the house, N.W.  $\frac{1}{2}$  W.; **Blacktail beacon**, distant about a mile, E.N.E.; **Mouse light-vessel** E. by S.; **Nore light-vessel** W.  $\frac{1}{4}$  S.; and **East Shoebury buoy** W.  $\frac{1}{2}$  N.

**MOUSE LIGHT-VESSEL**.—This lies in 5 fathoms, with the **Blacktail beacon** bearing W.N.W.; **Canewdon Church tower** N.W.  $\frac{1}{2}$  N.; the **Maplin lighthouse** N.E. by E.  $\frac{1}{2}$  E.; and the **Nore light-vessel**, west. This vessel exhibits, from a lantern, a bright light, and is to be left on the starboard hand in going down **Swin**.

**BUOY of the MOUSE** is black, and lies in 4 fathoms, on the starboard side. Its marks are, the **Blacktail beacon** W.N.W.  $\frac{1}{4}$  W., distant  $2\frac{3}{4}$  miles; **Canewdon Church** on with a small house on **Foulness Island**, N.W.  $\frac{1}{2}$  N.; the **Nore light-vessel**, west, 8 miles; the west buoy of the **Oaze** W.S.W., distant  $3\frac{3}{4}$  miles; the east buoy of the **Oaze** S. by E.  $\frac{3}{4}$  E.,  $1\frac{1}{2}$  mile; and the **Maplin lighthouse** N.E. by E.  $\frac{1}{4}$  E. The **Mouse** separates the **West Swin** from the **Barrow Deep**s, and hence becomes the eastern boundary of the **Swin Channel**, which here is  $1\frac{1}{2}$  mile wide.

**WEST BARROW**.—A white buoy is moored, in  $6\frac{1}{2}$  fathoms, on the starboard side, off the N.W. part or elbow of the **West Barrow Sand**, with the **Maplin lighthouse** N.E.  $\frac{3}{4}$  N.; the buoy of the **Mouse** W. by S.  $\frac{3}{4}$  S., and just clear of the north side of the sand, where it dries at the water's edge; the **Blacktail beacon**, west, nearly; and the **Maplin chequered buoy** N.W. by W.  $\frac{3}{4}$  W. Three ships' length to the northward of the buoy there are 10 fathoms water.

**FOULNESS SPIT, or MAPLIN BUOY**, (chequered black-and-white) lies in  $2\frac{3}{4}$  fathoms, on the port or larboard side. Its marks are, the **Mouse buoy** S.S.W.  $\frac{3}{4}$  W., distant  $1\frac{1}{2}$  mile; the **Blacktail beacon** W.  $\frac{3}{4}$  S., 3 miles; the **Maplin lighthouse** E. by N., about  $2\frac{1}{2}$  miles; the **West Barrow buoy** S.E. by E.  $\frac{3}{4}$  E.; and **Minster Church**, in the **Isle of Sheppey**, W.S.W. At the distance of a cable's length to the southward of this buoy are 10 fathoms at low spring ebbs.

**MAPLIN SPIT LIGHTHOUSE** is erected on screw piles, upon the south-eastern projecting part of the sand, where it becomes dry, or nearly so, at low water, spring-tides. It exhibits a red light, visible in all directions; and mariners are particularly cautioned and enjoined, never, under any circumstances, either by day or night, to attempt to cross the sand to the northward of the lighthouse.

**MAPLIN SPIT BUOY** is black, and lies in  $2\frac{3}{4}$  fathoms, rather more than a cable's length S.W. from the pile lighthouse. You must not attempt to pass between the buoy and the lighthouse.

**SWIN MIDDLE LIGHT-VESSEL**.—A light-vessel, showing one revolving light, elevated 36 feet above the sea, has been stationed near the S.W. end of the **Swin Middle Sand**, in 4 fathoms; the **Whitaker beacon** N.  $\frac{1}{2}$  E.; the **Whitaker buoy** N.E.  $\frac{3}{4}$  N.; and the **North Hook Middle (or Elbow) buoy** E. by N. This vessel is to be left on the east or starboard side going down.

**WHITAKER BEACON**.—A standing beacon has been placed upon the **Whitaker Sand**, with a small white house open to the eastward of **Bradwell Chapel**, twice the length of the chapel, bearing N.N.W.  $\frac{3}{4}$  W.; **Brightlingsea Church tower** twice its breadth open to the westward of the white mansion, N.  $\frac{1}{2}$  E.; **Maplin lighthouse** S.W.; **Ridge buoy** W.N.W.; and **Canewdon Church** W. by N., northerly. This beacon is placed in 4 feet water; and at the distance of 160 fathoms outside of the beacon, there are 3 fathoms. It is to be left on the port or larboard side.

**WHITAKER SPIT BUOY** is red, and lies in 3 fathoms, about a mile E. by N. from the **Whitaker beacon**, on the port or larboard side. Its marks are, the small building at the entrance of **Maldon river**, called **St. Peter's**, or **Bradwell Chapel**, bearing N.W.  $\frac{1}{2}$  N.; and the light-vessel on the west end of the **Middle** S.W.  $\frac{1}{4}$  W.,  $1\frac{1}{2}$  mile.

**SOUTH BUOY of the SWIN SPITWAY** is black, and lies in  $2\frac{1}{2}$  fathoms, to

be left on the port or larboard side. Its marks are, the cupola on one of the buildings at St. Osyth's, on with the eastern side of a Martello tower, bearing nearly north; and the Whitaker Spit buoy S.W.,  $1\frac{1}{2}$  mile.

**NORTH BUOY** of the SPITWAY.—At  $\frac{1}{2}$  of a mile N.N.W.  $\frac{1}{2}$  W. from the south buoy of the Swin Spitway, lies the red buoy of the Wallet, in 3 fathoms, having a staff and ball, and to be left on the starboard side. Its marks are, the Naze Tower N.E. by E.  $\frac{1}{4}$  E., and Brightlingsea Church just open to the right of a three-ridged roofed low building, N.  $\frac{3}{4}$  W. These buoys mark the passage into the Wallet, between the sands.

**S. W. GUNFLEET BUOY** is striped red-and-white, and marked "S.W. Gunfleet," to be left on the port or larboard side, and placed in  $3\frac{1}{2}$  fathoms water, nearly midway between the Swin Spitway buoy and the Gunfleet beacon, with Great Holland Church N. by E.  $\frac{1}{2}$  E.; Naze Tower N.E.  $\frac{1}{2}$  N.; Gunfleet beacon E.  $\frac{3}{4}$  N.; Spitway buoy west; buoy of the Heaps S.  $\frac{1}{4}$  E.; and the west Martello tower, on East Ness, N.W.  $\frac{1}{2}$  N.

**GUNFLEET BEACON** stands upon the Gunfleet Sand, and must be left on the port or larboard side. Its marks are, the Naze tower N.  $\frac{3}{4}$  E., distant  $6\frac{1}{4}$  miles; the buoy of the Heaps S.W. by W., 5 miles; the S.W. Gunfleet buoy W.  $\frac{1}{4}$  S., 4 miles; and south buoy of the Spitway W.  $\frac{1}{4}$  S., distant 8 miles.

**A BUOY**, painted black-and-white, with circular bands, is laid down about midway between the N.E. Gunfleet buoy and the Gunfleet beacon, in 5 fathoms, at low water, spring-tides. Its marks are, the second house westward of Walton terrace, apparently midway between two clumps of trees on the back land, bearing N.N.W.; Great Clacton windmill its apparent width open westward of a small white house on the cliff, N.W. by W.  $\frac{1}{2}$  W.; Naze tower N. by W.  $\frac{1}{2}$  W.; N.E. Gunfleet buoy N.E. by E.  $\frac{1}{2}$  E.; Gunfleet beacon W. by S.  $\frac{1}{2}$  S.; and the Sunk light-vessel S.E.  $\frac{3}{4}$  E.

**GUNFLEET EAST BUOY** is black, with a staff and ball upon it, and lies in 4 fathoms; to be left on the port or larboard side. Its marks are, the Naze tower and Walton hall in one, bearing N.W.  $\frac{1}{2}$  N.; the Gunfleet beacon W.S.W., distant 5 miles; the lights at Harwich N. by W., nearly; and the Sunk light S. by E., distant  $3\frac{1}{4}$  miles.

**MIDDLE HOOK, or ELBOW BUOY**, is chequered black-and-white, and lies in 3 fathoms; to be left on the starboard. Its marks are, the Whitaker beacon W.  $\frac{3}{4}$  N., 3 miles; the Whitaker Spit buoy W.N.W.  $\frac{1}{2}$  W.,  $2\frac{1}{2}$  miles; Swin Middle light-vessel W. by S., 3 miles; and the white beacon-buoy of the Heaps E. by S.  $\frac{1}{4}$  S., distant  $3\frac{1}{4}$  miles.

**BUOY** of the HEAPS is white, with a staff and ball, and lies in 3 fathoms; to be left on the starboard. The marks are, the Naze tower N.N.E.  $\frac{1}{2}$  E.; Great Holland Church N. by E.; the Gunfleet beacon N.E. by E.; and the Sunk-light-vessel E. by N., distant nearly 9 miles.

**SUNK LIGHT-VESSEL** is sloop-rigged, similar to that at the Nore, and shows one bright light, 30 feet above the sea, visible at all points 3 leagues off. It lies nearly  $1\frac{1}{4}$  mile N.N.E. from the eastern end of the Sunk, in 10 fathoms, and is to be left on the starboard. Its marks are, the Gunfleet beacon bearing W. by N.  $\frac{1}{4}$  N., distant nearly 5 miles; the Naze tower N.N.W.  $\frac{1}{2}$  W.,  $8\frac{1}{2}$  miles; the Gunfleet beacon-buoy N. by W., 3 miles; the black-and-white buoy on the West Rocks N.N.E., 5 miles; the red buoy of the Rough N.N.E.  $\frac{3}{4}$  E.,  $7\frac{1}{4}$  miles; the S.W. beacon-buoy on the Shipwash N.E. by E., distant  $7\frac{3}{4}$  miles; and the Long Sand Head buoy S.E.  $\frac{3}{4}$  E., easterly, 5 miles.

**SUNK SAND HEAD BUOY** is chequered red-and-white, and lies in 4 fathoms, with the Gunfleet beacon bearing W.N.W.; and the Naze tower N.N.W.

**LONG SAND HEAD BUOY** is black, and lies in 6 fathoms; to be left on the starboard. Its marks are, the Naze tower just touching the S.W. side of Walton hall N.W.  $\frac{1}{2}$  N.; the Sunk light-vessel N.W.  $\frac{3}{4}$  W., 5 miles; and the Kentish Knock light-vessel S.  $\frac{1}{2}$  W.

**BUOY** of the S.E. SPIT of WEST ROCKS is chequered black-and-white,



marked with the words "West Rocks," lying in  $3\frac{1}{2}$  fathoms; to be left on the port or larboard. The marks are, the Gunfleet beacon-buoy, S.W.  $\frac{1}{2}$  W., distant 2 miles 7-10ths; the Sunk light-vessel S.S.W., 5 miles; the buoy of the Rough N.E.  $\frac{1}{2}$  N., 2 miles 3-10ths; the S.W. buoy of the Shipwash E.  $\frac{1}{2}$  S.,  $4\frac{1}{2}$  miles; the sea-mark on Baudsey cliff N. by E.  $\frac{1}{2}$  E., 8 miles 1-5th; and the Naze tower W.N.W.  $\frac{1}{2}$  N., distant  $6\frac{1}{2}$  miles.

STONE BANK BUOY is black, with a white cross on its top, and a white-painted band round its top and middle. It lies on the upper part of the Stone Bank, between the West Rocks and the Harwich Naze, in  $2\frac{1}{2}$  fathoms. Its marks are, the Naze tower W. by S.; Harwich high light N.  $\frac{1}{2}$  W.; and Dover Court Church N.N.W.

CORK LEDGE LIGHT-VESSEL.—This vessel shows a bright revolving light, and lies in  $4\frac{1}{2}$  fathoms at low water, spring-tides; to be left on the port or larboard. The marks are, the S.W. land well open of Harwich Naze S.W. by W.  $\frac{1}{2}$  W.; Walton Martello tower, just open north of the East Martello tower, N.W.  $\frac{3}{4}$  N.; Harwich high lighthouse N.W.  $\frac{3}{4}$  W.; Platters buoy N.W. by W.  $\frac{1}{2}$  W.; Andrews buoy W. by N.  $\frac{1}{2}$  N.; Inner Ridge buoy W.  $\frac{1}{4}$  N.; Rough buoy S.E.  $\frac{1}{4}$  E.; and Cutler buoy E.N.E.

BUOY of the LOWER ROUGH is red, and lies on the eastern side of the Rough, in  $3\frac{1}{2}$  fathoms; to be left on the port or larboard side. Its marks are, the buoy on the east spit of the West Rocks S.W.  $\frac{1}{2}$  S., distant 2 miles 8-10ths; the Sunk light S.S.W.  $\frac{3}{4}$  W.,  $7\frac{1}{2}$  miles; buoy on the S.W. end of the Shipwash S.E. by E., 3 miles 2-10ths; buoy on the south part of the Baudsey N.E.  $\frac{1}{2}$  N., 4 miles; and Baudsey Church open to the left or westward of Baudsey sea-mark, N.  $\frac{1}{4}$  E.,  $6\frac{1}{2}$  miles from the latter.

BUOY on the south end of the SHIPWASH SAND is a spiral beacon-buoy, of large dimensions, painted black-and-white, in horizontal stripes, and surmounted by a black ball; it lies in 4 fathoms: to be left on the starboard. The marks are, the Sunk light S.W. by W., distant  $7\frac{1}{2}$  miles; the Gunfleet beacon-buoy W. by S., 7 miles; the Rough buoy N.W. by W., 3 miles; and the Baudsey S.W. buoy north,  $4\frac{3}{4}$  miles.

A new buoy has lately been moored near the N.W. side of the Shipwash Sand, about midway between the floating light-vessel at the N.E. end, and the large beacon-buoy at the S.W. end of the said sand; it lies in  $6\frac{1}{2}$  fathoms at low water, is coloured black-and-white in horizontal stripes, and lies with Baudsey sea-mark N.W.  $\frac{1}{4}$  W.; Shipwash light-vessel N.E.; and S.W. Shipwash buoy S.W.  $\frac{1}{2}$  S.

LIGHT-VESSEL at the N.E. end of the SHIPWASH is moored in 9 fathoms at low water, spring-tides, and lies with Aldborough Church N. by E.; Orford high light N. by W.; Baudsey Church, half the apparent length of its tower to the east of the second Martello tower on the cliff, W. by N., northerly; and Baudsey N.E. buoy W.  $\frac{1}{2}$  N. The appearance of this vessel during the day-time will be that of a vessel having one mast only, surmounted by a red ball, instead of three masts, as heretofore.—*Trinity House, London, 6th July, 1843.*

Mariners are to observe, that a S.W. course from the light-vessel (having due regard to the tides), will carry a vessel clear of the sand.

BUOY on the S.W. end of BAUDSEY SAND is chequered black-and-white, and lies in 4 fathoms; to be left on the port or larboard in proceeding through the Shipwash towards Orfordness. The marks are, the high light of Orfordness N.E.  $\frac{1}{4}$  N., distant  $7\frac{1}{2}$  miles; Hollesley Church N. by W.; Baudsey beacon N.W. by N.,  $3\frac{3}{4}$  miles; the N.E. buoy N.E. by E.  $\frac{3}{4}$  E.; the Rough buoy S.W.  $\frac{1}{2}$  S., 4 miles; and the Sunk light S.S.W.  $\frac{3}{4}$  W., 11 miles.

BUOY on the N.E. end of BAUDSEY SAND.—This buoy (black) has been lately removed about  $\frac{2}{3}$  of a mile, in a N.E. direction from its former situation, and now lies in 5 fathoms, with Aldborough Church well open to the eastward of Orfordness beach, bearing N.N.E.  $\frac{1}{4}$  E.; Baudsey Church open twice its width to the westward of the second tower below Baudsey cliff, W.N.W.; the N.E. Whiting

buoy N. by E; Baudsey beacon W. by N.  $\frac{1}{2}$  N.; and Orfordness high light N.N.E. This end of the Baudsey Sand is called the Bald Head.

BUOY of the CUTLER is black, and lies in  $4\frac{1}{2}$  fathoms; to be left on the port or larboard side. The marks are, Baudsey Church on with a white house seen over Baudsey cliff, bearing N.  $\frac{1}{2}$  E.; and the low lighthouse at Orfordness a little open to the southward of the high one.

BUOY of the S.W. end of the WHITING is white, and lies in  $3\frac{3}{4}$  fathoms water, with a white mill up the country, a little open to the westward of a white house, and entering on a grove of trees, bearing N.  $\frac{1}{2}$  W.; and the lower lighthouse a little open to the southward of the high lighthouse at Orfordness.

BUOY on the ELBOW of the WHITING is white, and lies in 3 fathoms water, on the inner edge of the sand,  $2\frac{1}{2}$  miles from the S.W. buoy. Its marks are, Orfordness lighthouses in one, bearing N.E. by E.; and Orford Castle N. by E., with a white mill a little open to the westward of it.

BUOY on the N.E. end of the WHITING is white, with a staff and ball, and lies in  $3\frac{3}{4}$  fathoms water, within  $\frac{3}{4}$  of a mile of the opposite beach. Its marks are, Orford Church bearing N. by W.; and the high lighthouse N.E.  $\frac{1}{2}$  N.

BUOY of ALDBOROUGH KNAPES is chequered black-and-white, and lies in 5 fathoms, on the eastern edge of the shoal. Its marks are, Aldborough Church N.W.; Orford high light W.  $\frac{3}{4}$  S.; Orford Church and Castle in one, W.  $\frac{1}{2}$  N.; and Iken Church, which has a steeple-tower, nearly N.W. by W.,  $\frac{1}{3}$  the apparent distance between Aldborough town to Slaugden houses.

## DIRECTIONS FOR SAILING FROM THE NORE, THROUGH THE SWIN, &c.

SAILING from about  $\frac{1}{2}$  a mile to the northward of the Nore light-vessel to a fair berth between the Mouse light-vessel and the Blacktail beacon, the course and distance are E.  $\frac{1}{2}$  S.,  $6\frac{1}{2}$  miles, and from thence to abreast of the Maplin lighthouse, E.N.E.  $\frac{1}{2}$  E., 5 miles, allowance being made for the tides, observing, that the ebb sets to the S.E. and east. Or, being at the same distance from the Nore light, you may steer E.S.E.  $\frac{3}{4}$  E.,  $4\frac{1}{2}$  miles, or until the Blacktail beacon bears N.E.  $\frac{1}{2}$  N., and then proceed E.N.E.  $\frac{1}{2}$  E., 7 miles to the Maplin lighthouse. There is a *long narrow flat* between the Nore light and the Oaze, lying nearly mid-channel, called the *Warp*, with  $4\frac{1}{2}$ , 5, and 6 fathoms upon it, having deeper water on each side of it. Keep to the northward of the Warp until you get nearly abreast of the Blacktail beacon, athwart of which are 7, 8, and 9 fathoms. When thus far, if the wind and tide do not allow you to proceed through the Swin, you should anchor, with the Nore light bearing W.  $\frac{1}{2}$  S., distant  $5\frac{1}{2}$  miles. In turning, take care not to go too far to the northward of the Warp, as the Maplin Sand is steep-to.

There is a channel between the *EAST* and *WEST BARROWS*, with from 6 to 20 feet in it; but it is very narrow, being only 2 cables' length in width. It lies N.W. and S.E., and is  $1\frac{1}{2}$  mile in length. Its N.W. entrance lies east,  $1\frac{1}{2}$  mile from the Maplin lighthouse. The passage, therefore, for ships is between the Barrows and Maplin Sands, this part being called the West Swin.

IN WORKING DOWN FROM THE NORE, when opposite the Blacktail beacon, you may stand to the northward into 6 or 8 fathoms, and towards the OAZE into 7 or 6 fathoms. But when you get down so low as the Mouse light-vessel, you must not stand into less than 7 fathoms on either side. In the middle channel are 11, 10, and 9 fathoms. From abreast of the Blacktail to the Maplin lighthouse, the course is from E.  $\frac{1}{2}$  N. to E. by N., and the navigation somewhat difficult. Be careful, in running from the Warp, not to go too far to the southward, lest the tide should set you to the southward of the Mouse. The course from abreast of the Maplin lighthouse to the Middle light-vessel, which must be passed to the westward, is N.E.,

and the distance 4 miles. In turning from the Maplin lighthouse to the Middle light-vessel, you may stand to the Barrows into 6 fathoms, and towards the Maplin Sand into 6 fathoms. Between the Maplin lighthouse and the Middle light-vessel there is good anchorage anywhere, from a mile below the former to within a mile above the latter, in 8, 7, and 6 fathoms. This is an excellent roadstead; but care should be taken lest you get into the Middle Deep, which now forms a channel 6 miles long, with from 5 to 8 fathoms in it. The tide here sets with great strength; and you will be endangered by running on the Barrow Sands.

The channel between the Swin Middle light-vessel and the Whitaker Spit is very narrow, being not much more than  $\frac{1}{2}$  a mile wide, with 5 and 6 fathoms water in it, between the Heaps and Gunfleet. From abreast of the light-vessel to the chequered buoy of the Hook, the course is about E.  $\frac{3}{4}$  N., and the distance 3 miles; this direction will carry you right through the East Swin, or King's Channel, clear of every danger, to abreast of the Sunk light; and when the Sunk light bears S.S.E., distant  $1\frac{1}{2}$  mile, steer N.E., a little easterly, and it will lead you between the Baudsey and Shipwash, and to the northward of the Aldborough Knapes. From the buoy of the Hook to the eastern white buoy of the Heaps, the course is E. by S.  $\frac{1}{4}$  S., distant  $3\frac{1}{4}$  miles.

**MALDON, or BLACKWATER RIVER.**—The Spitway is a passage out of the Swin into the WALLET, or the MALDON RIVER, between the east end of the Buxey and the west end of the Gunfleet, and has from about 8 to 9 feet in it at low water. The entrance to Maldon is obstructed by several *shoals*, some of which dry, and others have very little water over them. Your course through the Spitway is N.N.W.  $\frac{1}{2}$  W.,  $1\frac{1}{2}$  mile, leaving the black buoy on the east end of the Buxey on the western, or port or larboard side, and the red beacon-buoy on the Gunfleet on the starboard. From the Spitway to the entrance of the Maldon River, steer N.W.; here are 2 buoys: the southern, or white one, lies on the east end of the *knoll*, in 2 fathoms water; its marks are, Barn Hall, 2 ships' length open of the west end of Mersey Island, bearing N.W.  $\frac{1}{2}$  N.; Brightlingsea Church, on with My Lady's White House, N.  $\frac{1}{2}$  E.; St. Osyth's Church, on with the middle of Eagle Hedge, N.E. by N.; and the North Spitway buoy S.E.

The black buoy lies on the S.E. end of the Eagle, in 2 fathoms also; its marks are, Barn Hall, a ship's length open of the west end of Mersey Island, bearing N.W.  $\frac{1}{2}$  N.; Brightlingsea Church and My Lady's House in one; the white buoy of the knoll S.  $\frac{1}{2}$  W.; St. Osyth's Church on the middle of Eagle Hedge; and the S.W. land E. by N. Steer between these two buoys, and you will get over the bar, into 7 and 8 fathoms water, off the red buoy, or Colne Bar Head, and may proceed up the River Mersey, keeping mid-channel until you have passed the western end of Mersey Island, when you find the water increase in depth.

The above-mentioned red buoy is placed at the entrance to the River Colne, at the Bar Head, in 3 fathoms, bearing from the Eagle buoy N.W. by N., and from the knoll buoy N. by W.  $\frac{1}{2}$  W.; it lies with Little Holland cliff just open of Eastness Point E.  $\frac{1}{4}$  N.; and Brightlingsea Church, on with the west and highest part of Brightlingsea Wood, N.  $\frac{3}{4}$  E. The course from the Bar Head up the River Colne is about north, leaving the red buoy on the east or starboard side.

There is good anchorage and deep water behind the *Buxey*, in a place called *Swire Hole*, in from 5 to 8 fathoms; also a passage for small vessels to the westward of the Buxey, leading to the River Crouch: but the best channel to this river is to the southward of the Buxey. On the north end of the Maplin Sand is a red buoy, which you must leave to the port or larboard; and at the western end of the Buxey, on the starboard side, is a black buoy: this passage is about  $\frac{3}{4}$  of a mile wide; but within it lies the *Sunken Buxey*, part of which dries at low water, dividing and narrowing that part of the channel, in which are 2 fathoms water.

The channel between the Swin Middle and Heaps on one side, and the Gunfleet on the other, is 2 to  $2\frac{1}{2}$  miles wide: but when you have passed the buoy of the Heaps, the passage is  $4\frac{1}{2}$  miles broad; this is called the East Swin, or King's

Channel. As there are 5 fathoms close to the Middle and Heaps, you should not come nearer to any part of them than into 7 fathoms. Between the Middle Ground and Whitaker Flats are  $5\frac{1}{2}$  to 6 fathoms; and between the former and the Gunfleet are 6 and 8 fathoms.

The *Sunk Sand* is steep-to on both sides. In working down between the Sunk and Gunfleet, stand no nearer to the Sunk than to bring the light-vessel about E. by N., but not more to the northward; you will then have 10, 11, and 12 fathoms water. Come not nearer the Gunfleet than 6 or 7 fathoms. When the Sunk light-vessel bears E. by N., you are then in the line between it and the buoy of the Heaps.

**TIDES.**—It is high water in the King's Channel, on full and change days, at 12 o'clock: spring-tides rise about 16 feet, neaps 10; but allowance must be made for the wind, remembering that the tide flows sooner with an easterly wind, and later with an opposite one. In the West Swin, from the West Spitway to the west end of the Oaze, the stream changes its direction at 20 min. after 12; in the Middle, between the east end of the Gunfleet and Harwich Naze, at 10 min. past 12; and at about 2 miles S.S.W. from the same end of the Gunfleet, at 12 o'clock.

At the entrances of Burnham, Maldon, and Colne Rivers, it is high water at 12, and the rise is about 14 feet; but at Maldon Quay at 1 o'clock, the rise being there only  $6\frac{1}{2}$  feet.

Through the King's Channel and West Swin the flood-tide sets into the river nearly in the direction of the several shoals. The flood sets, during the first 2 hours, with great velocity between the Sunk and Long Sand, and the ebb in a contrary direction. Through the Swin the tide sets with considerable strength, especially in the West Swin, between the Mouse and Maplin, as also through the Middle Deep. The ebb-tide sets obliquely, with much strength, over the Mouse and West Barrows; you must, therefore, be careful in going down, that it does not set you aground between them: indeed, it is necessary to use the same caution in passing through any of the channels, as the tides, setting W.S.W. and E.N.E., take an oblique direction over many of the sands and shoals, particularly those between the north end of the Shipway and Gunfleet.

## DIRECTIONS FOR SAILING FROM THE KING'S CHANNEL TOWARDS ORFORDNESS.

SHIPS bound outward from the Swin, or King's Channel, to the north-eastward, by Orfordness, may sail through between the Baudsey and Shipwash Sands, in what is called the *Shipway*; or, hauling up through the Sledway, between the Rough and Baudsey, pass through Hollesley Bay, to the westward of the Whiting, towards Orfordness.

In proceeding through the Shipway, when you arrive about midway between the east buoy of the Gunfleet and the Sunk light-vessel, having the former bearing N.N.W. or N. by W. from you, distant 2 miles, you should steer N.E., which course, kept on for 16 miles, will bring you to a berth 2 miles S.E. by S. of Orfordness low light. When you have sailed on this course nearly 4 miles, you will be abreast of the chequered black-and-white buoy of the West Rocks; leaving that on your port or larboard hand, distant a mile, and sailing 3 miles farther on, you will find yourself directly between the red buoy of the Rough and the large black-and-white striped beacon-buoy on the S.W. end of the Shipwash, with the Rough on your port or larboard side, and the Shipwash on the starboard; 4 miles farther you will reach the S.W. buoy of the Baudsey, which is chequered: this you will leave on your port or larboard side, distant  $1\frac{1}{2}$  mile: the black buoy on its N.E. end is also to be left on the port or larboard side. At  $5\frac{1}{2}$  miles beyond the Baudsey S.W. buoy, you will reach the light-vessel at the N.E. end of the Shipwash; you may then shape a course towards Orfordness in the same direction, until within 2 miles of

the Ness, when, by steering N.E.  $\frac{1}{2}$  N., you will go to the westward of the Knapes or Napes; or, altering the direction to N.E. by E., pass to the south-eastward of that shoal.

Throughout the whole of the preceding navigation the depths of water will vary from 11 to 5, and from 6 to 13 fathoms; but great care must always be taken to keep off the shoals, for their edges are steep: and proper allowance must be made for the setting of the tides, the flood setting about W. S.W., and the ebb E.N.E., over the Shipwash, which renders this sand very dangerous.

In proceeding through the Sledway towards Hollesley Bay, when midway between the Gunfleet east buoy and the Sunk light-vessel, steer N.E., until you have passed the buoy of the West Rocks nearly 2 miles, or until you get Butley Church just open to the eastward of Boyton Mill, and to the westward of Boyton Wood, bearing N. by E.  $\frac{1}{2}$  E., a little easterly, which mark will carry you directly through the Sledway to the eastward of the Rough, in from  $4\frac{3}{4}$  to 7 or 8 fathoms water, at the distance of 2 cables' length to the eastward of the red buoy of the lower Rough. Proceed with this mark on, in 6, 8, and 7 fathoms, until Orford N.W., or White Mill, comes a little open of Havergate Island House, bearing N.E.  $\frac{3}{4}$  N.: keep this mark on until you get between the S.W. end of the Whiting and the Middle Ground, or until Orford high lighthouse appears about twice its height to the southward of the low lighthouse, when you will be on the shoalest part of the Flagstone, in  $5\frac{1}{2}$  fathoms: this is the leading-mark through Hollesley Bay; proceed with it until you come to the north-eastward of the hook or elbow of the Whiting, when you should steer E.  $\frac{1}{2}$  N.; this will carry you to the southward of the Knapes. The mark to clear its S.W. end, is Orford Castle a sail's breadth open to the southward of the Church, bearing W. by N. Take care not to bring Orford high light to the southward of west, until Iken Church opens to the northward of the limekiln. But if desirous of going between Aldborough Knapes and the main, then give Orfordness a good berth, and keep Baudsey Church well open to the southward of the Ness, bearing W. S.W.  $\frac{3}{4}$  W., in order to avoid the Onion, or Nathaniel's Knoll, and the Ridge, until Aldborough Church bears N.N.W.; then haul up N.E.  $\frac{1}{2}$  N., which will lead to the northward of the Knapes.

In turning to windward, stand no nearer to the west end of the Shipwash than till Baudsey Church comes on with the N.E. end of the long wood which stands to the eastward of Baudsey cliff; nor to the West Rocks than till Alderton Church comes on with Baudsey Church. Stand no nearer to the West Rocks than 5 fathoms, nor to the Shipwash than 8 fathoms. After you have passed the Rough, stand no nearer to the Baudsey Sand than till the tree, which stands to the northward of Orford Church comes near to the west side of that Church; nor the Cork Sand, or Cork Ledge, than till Harwich Church steeple comes on with the Martello tower, which stands a little to the northward of Landguard Fort. In the night, stand no nearer to the Ledge than 4 fathoms, nor nearer the Cutler than 5.

Sailing from the Gunfleet beacon-buoy to the upper anchorage in Hollesley Bay, steer N.E. by E.  $\frac{1}{2}$  E., 3 miles; and then from off the chequered buoy of the West Rocks, a N.E. course, for 3 miles, will lead clear to the eastward of the lower Rough buoy, when you may bring Baudsey Church open to the eastward of the new beacon, bearing N.  $\frac{1}{4}$  W., and run in for the black buoy of the Cutler, from off which, the course to the anchorage in Hollesley Bay, is N.E.  $\frac{1}{4}$  N., distant about 3 miles.

The best anchorage in HOLLESLEY BAY, is with Hollesley Church bearing N. by W.  $\frac{3}{4}$  W., or with the Parsonage-house in one with Red Barn, in 5 or  $4\frac{1}{2}$  fathoms. There is good anchorage in the north-eastern part of the bay, between the Middle or Hook buoy of Whiting and the N.E. end of the Middle Ground, in a depth of 6 or 7 fathoms. In Hollesley Bay the tide flows on the full and change, at 11 o'clock.

In turning through Hollesley Bay, stand no nearer on either side than 6 fathoms, nor to the beach than 7 or 8 fathoms.

Close to Orfordness the depth is 8 fathoms, with a hard bottom, and so steep, *that you should not approach it with less than 10 fathoms.* To the westward of

the Onion there is a counter-tide, which runs down with as much velocity as the tide in the channel runs up; therefore, be careful not to get into this eddy, as some ships, in turning, have missed stays, and run on shore.

## HOLLESLEY, OR HOSLEY BAY, TO HARWICH.

### *Description of the Shoals, Buoys, &c.*

THE entrance to Harwich is encumbered with numerous *shoals*, which lie within those already described; and the passage from Holllesley Bay to Harwich Harbour is bounded by the following:—the *Cutler*, the *Platters*, the *Andrews*, and the *Felixstow* and *Wadgate Ledges*, all of which lie on the starboard side; also the *Cork Knot*, *Cork Ledge*, *Cork Spit*, the *Ridge*, *Halliday Flats*, the *Altar*, *Cliff Foot*, *Cod*, *Glutton*, *Guard*, *Bone*, and *Gristle*; most of which are to be left on the port or larboard side.

THE **CUTLER** is a *rocky shoal*, of irregular depth, lying directly off Baudsey cliff, and distinguished by a black buoy, placed at its southern point, in  $4\frac{1}{2}$  fathoms; its marks being, Baudsey Church open to the left of Baudsey sea-mark, bearing N.  $\frac{1}{2}$  E.; and Orford low light a little open to the southward of the high light.

**FELIXSTOW** and **WADGATE LEDGES** lie on the northern side of the channel the former stretching a full mile off Felixstow cliff, and having 3 and 2 fathoms on its outer parts. The Wadgate is a small *rocky patch*, of 3 fathoms, a little to the south-westward of the former ledge. Burnthouse cliff just open of the Naze cliff, bearing S.W. by W.  $\frac{1}{2}$  W., will lead to the southward of both these ledges; which ought not to be approached nearer than 4 fathoms water.

THE **PLATTERS** extend almost a mile from the shore, the outer part lying S.E. by E. from Landguard Fort, and nearly dry at low water. Come no nearer to them than 5 fathoms. The mark to carry you clear of them is, Orford Church and Castle open of Baudsey cliff. Off the east point of the Platters is a black buoy, in  $4\frac{1}{2}$  fathoms, with Harwich Church on with the cupola of the Chapel of Landguard Fort, bearing N.W.; and the white house at Baudsey ferry on with the N.E. end of Felixstow cliff, N.E.

THE **ANDREWS**.—To the westward of the Platters is the Andrews, another dangerous *shoal*, almost dry, and, on its western side, steep-to. It lies within the Platters, and extends nearly  $\frac{1}{2}$  a mile S.S.E. from the stony beach; the first half-ebb sets over it very strong. This forms the starboard boundary of the entrance to Harwich harbour. On the edge of the Andrews, or West Spit, a black buoy is laid, in 4 fathoms, with Arwarton Church on with Harwich high lighthouse N.W. by N.; Baudsey Church on with the N.E. end of Felixstow cliff N.E.  $\frac{1}{4}$  E.; and the buoy of the Platters E.  $\frac{1}{4}$  S.

**CORK KNOT, LEDGE, and SPIT**.—The two former have already been described in page 20. The Cork Spit N.W. end lies  $1\frac{1}{4}$  mile S.E.  $\frac{1}{4}$  E. from Landguard Fort; the least water over it is  $2\frac{3}{4}$  fathoms. Burnthouse cliff just open to the left of Naze cliff, leads over its S.E. end. These shoals are all to be left on the port or larboard side; and the space between them and Felixstow and Wadgate Ledges, is commonly called Felixstow Road.

THE **RIDGE** is a *rocky ledge*, lying also on the south side of the channel, extending N.W. and S.E.,  $\frac{3}{4}$  of a mile, and is above  $\frac{1}{2}$  of a mile broad; the least water over it is 6 feet. On its S.E. end is placed a buoy, chequered red-and-white, in  $2\frac{1}{2}$  fathoms, with the chimney of the white house at Shotley on the middle of the red-tiled Queen's storehouse, in the dock-yard at Harwich, bearing N. by W.  $\frac{1}{4}$  W.; the westernmost Martello tower at Woodbridge Haven just open with the N.E. end of the Felixstow cliff, bearing N.E.  $\frac{1}{4}$  E.; buoy on the Stone Banks S.S.W.  $\frac{1}{2}$  W.; buoy on the Platters N.E.; and the buoy on the Andrews, north.

There is also a white buoy on the inner part of the ridge, laid in  $2\frac{1}{2}$  fathoms, with

Arwarton Church touching the west part of the Martello tower immediately to the south-westward of Harwich, bearing N.W. by N.; a large tree inland its width on the low part of Felixstow cliff N.E.  $\frac{1}{2}$  E.; buoy on the Andrews N.N.E.; and the S.E. buoy of the Ridge S.  $\frac{1}{2}$  E. Between this buoy and that of the Andrews, which are only  $\frac{1}{4}$  of a mile asunder, is the usual channel into the harbour, in 4 fathoms, over the bar which separates the Pitching from the Rolling Grounds.

The **HALLIDAY FLATS** extend in a N.W. by W.  $\frac{1}{2}$  W. direction from the inner buoy of the Ridge, having on the edge 10, 11, 12, and 13 feet water. These flats form the southern boundary of the Rolling Grounds; while the Andrews Spit and Beach End form the northern boundary. To mark the shoal ground off Landguard point, a black buoy has been placed, marked "Beach End," off the South Spit thereof, in  $2\frac{1}{2}$  fathoms, with the Martello tower on the mound of Felixstow, in line with the S.E. angle of Landguard Fort, N.E. by E.; Harwich high light-tower its apparent width open west of the low lighthouse, N.N.W.  $\frac{3}{4}$  W.; and the Andrews buoy S.E.

The **ALTAR** is a *rocky shoal*, of only 7 feet water, and is situated north, nearly  $\frac{1}{4}$  of a mile from the black buoy on the Beach End, and W. by S., nearly  $\frac{1}{2}$  a mile from the cupola of Landguard Fort.

The ALTAR FLAT lies to the northward of the Altar, and extends, in an angle, from the shoal part, N.W. by N. to N.N.E., having from 10 to 12 feet on it; the northern edge being  $\frac{1}{4}$  of a mile from the Altar. On this is a buoy, painted black, and marked on the head "West Altar," placed on the western elbow of the shoal. It lies in 3 fathoms, with the Martello tower on the mound of Felixstow, in line with the northernmost boat-house next north of Landguard Fort, N.E. by E.  $\frac{3}{4}$  E.; Harwich high light-tower just open north of the low lighthouse, N.W. by N.; Beach End buoy S. by E.  $\frac{1}{4}$  E.; Cliff Foot Rock buoy S.W. by W.  $\frac{1}{4}$  W.; and Glutton buoy N.E.  $\frac{1}{2}$  N.

The **CLIFF FOOT ROCKS** lie to the westward of the Altar; and between them is the entrance into the channels of Harwich harbour. The eastern edge of the rocks is marked with a chequered black-and-white buoy, bearing from the Beach End buoy N.W. by W.  $\frac{1}{4}$  W., and from the buoy of the Altar S.W. by W.  $\frac{1}{4}$  W. This shoal extends more than  $\frac{1}{4}$  of a mile in a N.N.W. direction, to within 2 cables' length of Blackman's Head, off the Beacon cliff, and has not more than 2 feet on its shoalest part. Off Blackman's Head is a black buoy, and to the southward, on the edge of the bank which surrounds the beacon cliff, are two others, while to the northward are also two; these five black buoys mark the Ordnance boundary.

The **COD BANK** lies a full  $\frac{1}{4}$  of a mile N.N.E. from the buoy of the West Altar, and  $\frac{1}{2}$  a mile from Landguard Fort, having 9 to 12 feet over it at low water.

The **GLUTTON** lies to the northward of the Cod, with from 7 to 12 feet over it; the western edge bears N. by E.  $\frac{1}{4}$  E. from the buoy of the Altar; the eastern edge is marked with a red buoy, which lies in 9 feet, with Harwich Church spire N.W. by W.  $\frac{3}{4}$  W.; Harwich cliff end W.  $\frac{3}{4}$  S.; and Felixstow Martello tower E. by N.

The **GUARD, or HARWICH SHELF**, extends round the point of Harwich, to the distance of 3 cables' length, and has from 2 feet to 1 fathom upon it; from thence it stretches another 3 cables, deepening to 2 fathoms, and forms the western side of the western channel. Part of this shelf dries from the point of Harwich, to 2 cables' length.

The **BONE** and **GRISTLE** are both within the bar, and lie in the middle of the channel. The Bone is the larger and most easterly of the two, having 5, 6, and 12 feet over it, and lying  $\frac{1}{2}$  a mile from the opposite shore, between which is 6 fathoms, and the common passage for ships. The Gristle is a round shoal, of 6 and 3 feet, and lies just within the Bone, and about  $\frac{1}{3}$  of a mile from the Guard, between which is 4 fathoms. The red buoy placed upon the north end of this shoal, lies in 2 fathoms, with Landguard Fort cupola its width open east of the flag-staff on the fort, S. by E.; Harwich low lighthouse its apparent width on with the north angle of Harwich citadel, W. by S.  $\frac{3}{4}$  S.; and Glutton buoy S.  $\frac{3}{4}$  E.

**WALTON FLAT** is the shoal water that stretches off the dry beach, at low water, opposite to Walton Martello tower and ferry, a full cable's length, and towards the River Orwell, having from 1 to 4 feet on it.

**THE HORSE BANK** is a *shoal*, of 3 to 7 feet, lying a cable's length off Bloody Point of the Shotley Flats, between the Rivers Stour and Orwell.

## DIRECTIONS FOR SAILING FROM HOLLESLEY BAY TO HARWICH.

In running from Hollesley Bay for Harwich, bring Orfordness low lighthouse a little open to the N.W. of the high lighthouse; and when Baudsey Church bears N.N.W.  $\frac{1}{2}$  W., being in one with the east part of Baudsey Wood, you will find yourself near the north-east end of the Cutler: then open the low light to the eastward, or right-hand of the high lighthouse, keeping it in that direction till Ramsholt Church appears to the westward of Baudsey cliff, you will then have passed to the westward of the Cutler buoy, and be at the entrance to Felixstow Road, with Baudsey Church bearing N.N.E., Landguard Fort W.N.W.  $\frac{3}{4}$  W., and the buoy of the Cutler E.N.E.  $\frac{1}{2}$  E., distant  $1\frac{1}{4}$  mile. From thence a west course will take you through Felixstow Road to the Pitching Ground, past the Cork Ledge light-vessel, giving it a good berth on the port or larboard side in passing, to avoid the Cork Spit; pay proper attention to the tide, and come no nearer to the Cutler than 5 fathoms water. When Dover Court Church bears N.W. by W., westerly, steer right towards it between the buoys of the Ridge and Andrews, until Harwich high lighthouse comes its own breadth open west of the low lighthouse, bearing N.N.W.  $\frac{1}{4}$  W.; then run in with this mark on, until  $\frac{1}{2}$  of a mile past the Beach End buoy, and get the cupola of Landguard Fort to bear E. by N., when you will have the Altar buoy bearing N.N.E., and Cliff Foot Rocks W.  $\frac{1}{2}$  S., and will be at the entrance of the channels.

The *EASTERN and usual CHANNEL*, after passing the Beach End buoy, leads close round to the westward of the Altar buoy; then crosses the Altar Flat, in 12 feet at low water, spring-tides: when, following the Suffolk shore, it leaves all the rest of the shoals to the westward.

From abreast of the Andrews buoy, steer to the westward, so as to bring the high lighthouse its own breadth open west of the low lighthouse; run in upon that line, passing to the westward of the Beach End buoy, and hauling close round the Altar buoy. If the latter should not be seen, it will have been passed when the east Martello tower on Landguard beach opens north of the black boat-house. Now steer over to the Suffolk shore, about E.N.E. and northerly, till the flag-staff and cupola of Landguard Fort come in one, S.  $\frac{1}{2}$  E.; this mark leads through the rest of the channel, till the black granary comes in one with Walton gravel-pit, E.  $\frac{3}{4}$  N. From thence a W. by N. course clears the Bone and Gristle, and leads to Harwich anchorage.

To work in, keep the high lighthouse open west of the low lighthouse; stand towards the Halliday Flats by the lead, and towards Cliff Foot, till East Shotley Martello tower comes within its own breadth of the Ordnance pile jetty, N. by W. In standing towards the Altar, tack before the lighthouses come in one. In turning to the eastward across the Altar Flat, after rounding the Altar buoy, stand to the southward till the east Martello tower comes in one with the black boat-house; and to the northward, keeping Dover Court Mill well open of the Beacon cliff. The clearing-mark, when standing to the Glutton and Bone, is the flag-staff between the two western stacks of chimnies in Landguard Fort; but this leads nearer the Bone than the Glutton.

The Suffolk beach may be approached generally within a cable's length, except near Walton ferry, where cement heaps are strewn about the shore. In working towards the town, when standing to the southward, keep Walton gravel-pit open



to the northward of the black granary; but the Shotley shore may be approached till the two Walton mills and the Walton Martello tower are in one.

The *WESTERN CHANNEL* is the most direct; it leaves the Altar buoy, as well as the four small shoals, to the eastward, and follows along the edge of the Guard, or Harwich Shelf, carrying everywhere 2 fathoms, except on a small knoll, of 11 feet. This channel can only be taken with a leading wind, or a steam-vessel.

**DIRECTIONS.**—From the fairway between the Altar and Cliff Foot buoys, stand about N.N.E., till two small white beacons under Fagsborough cliff, come in one, bearing N. by E.  $\frac{3}{4}$  E., and they will lead fairly in, till another small white beacon and Shotley Martello tower are in one, about N.W.  $\frac{3}{4}$  N.; then hard-a-starboard the helm, in order to place the vessel's head on the latter mark, which leads midway between the Guard and Gristle, to the anchorage off the town.

Besides the above, there is a *DEEP-WATER CHANNEL*, of 19 feet at low water, springs, close round Landguard point; but it is so narrow at present, that for a frigate, buoys or boats must be placed on either side.

When rounding Shotley point, in order to cross from the Stour to the Orwell, keep the top of the high lighthouse open to the eastward of Harwich steeple, about midway along the roof of the Church, bearing S.S.W.  $\frac{1}{2}$  W.; or keep the low lighthouse well open of the Ordnance pile jetty. Either of these marks will clear the Horse Bank, in 12 feet at low water.

The best anchorage in Felixstow Road is, with Baudsey Church about twice its breadth to the west of the highest top of Baudsey cliff, where the signal-house stands, in  $4\frac{1}{2}$  fathoms water.

The best anchorage in the Pitching Ground is, with Orford Castle, thrice the distance between the church and the castle, to the S.E. of Baudsey cliff, in 5 fathoms water.

The best anchorage in the Rolling Ground is, Baudsey cliff, on with Felixstow cliff, and Harwich low lighthouse, about half-way between the church and the high lighthouse, in 5 fathoms water.

The *Rough Channel* is between the Cork Sand, Ledge, and Spit, on one side, and the Cork Knot and Wadgate Ledge on the other. Vessels navigating this channel must bring the high lighthouse of Harwich just open to the right of Landguard Fort, bearing N.W. by W., and keep this mark on until Baudsey Church bears N.E.  $\frac{1}{2}$  E. This will then carry them to the entrance of the Pitching Ground, when they should proceed as before directed. To sail to the eastward of the Rough, bring Baudsey Church in one with the sea-mark on Baudsey cliff, bearing N.  $\frac{1}{4}$  W.

## THROUGH GOLDMER'S GAT, OVER THE NAZE FLATS, TO HARWICH.

### *Description of the Shoals, Buoys, &c.*

**THE NAZE FLATS** extend a considerable way to the eastward, and join the West Rocks. Large ships bound over them for Harwich, should be particularly careful of the tides, that the rise of water may be sufficient to carry them safely over.

The passage over the Flats is called the *Medusa Channel*, having on its western side the *Naze Ledge*, *South*, *Middle*, and *North Bars*, the *Pye* and *Halkiday Sands*, and *Cliff Foot Rock*; while to the eastward are the *Stone Banks* and the *Ridge*.

**THE NAZE LEDGE** is a *rocky shoal*, which stretches out a full mile to the eastward of the land, having from 6 to 3 feet over it; the shallowest part being nearest the shore. Its south-eastern extremity bears from the Naze tower S.E.  $\frac{1}{2}$  E., distant  $1\frac{1}{2}$  mile, with 2 fathoms water upon it.

**SOUTH, MIDDLE, and NORTH BARS.**—These rocky ridges run to the north-

ward of the Ledge, and are of irregular forms and unequal depths, having over them from  $\frac{3}{4}$  to  $1\frac{1}{2}$  fathom.

**The PIE SAND** is a long narrow strip, stretching out E.N.E.,  $1\frac{1}{4}$  mile from Walton stone point, which is the southern point of the entrance to Horsey or Handford water. It is dry at low water, and almost so at half-ebb. Its extreme point lies with Harwich cliff N.N.E., distant  $1\frac{1}{2}$  mile; and Dover Court Church on with a farm-house N.N.W.  $\frac{1}{2}$  W.

**The HALLIDAYS** are to the northward of the Pie Sand, and form the northern boundary of the entrance to Handford. They dry at low water, but do not stretch out so far to the eastward as the Pie Sand.

**The CLIFF FOOT ROCK** lies about  $\frac{1}{4}$  of a mile outside Harwich cliff, having only 2 feet on its shoalest part. This and the above, as before observed, all lie on the western side of the channel.

**The STONE BANKS** are those irregular and extensive *banks* which lie between the Naze Ledges and the West Rocks; having over them from 7 to 3 fathoms. A black buoy, with a white cross on its top, and a white band painted round its top and middle, is placed upon the Stone Banks, in  $2\frac{1}{2}$  fathoms water; from which the Naze tower bears W. by S.; Harwich high light N.  $\frac{1}{4}$  W.; and Dover Court Church N.N.W.  $\frac{1}{4}$  W.

**The HORN** is a small *rocky spot*, with only 6 feet over it, lying S. by W.  $\frac{1}{4}$  W., about  $\frac{1}{2}$  a mile from the west end of the Ridge; S.E. by E.  $\frac{1}{2}$  E., a mile from the N.E. end of the Pie Sand, and N.  $\frac{3}{4}$  E.,  $1\frac{1}{2}$  mile from the Stone Banks buoy.

## DIRECTIONS FOR SAILING OVER THE NAZE FLATS TO HARWICH, THE WALLET, &c.

**VESSELS** proceeding through Goldmer's Gat, should bring Walton Hall just open to the right of the Naze Tower, bearing N.W.  $\frac{1}{3}$  N.: run along with this mark on, until the high light of Harwich comes N.  $\frac{1}{2}$  E., and in a line with Blackman's Head, which is the east side of Harwich cliff; you will then be at the entrance of the Medusa Channel, and should bring a large red-brick house, at Walton Ferry brick-kilns, within Landguard Fort, about half its length open to the left of the high water-mark of Landguard point, bearing N. by E.  $\frac{3}{4}$  E. This is the leading-mark through the Medusa Channel to the Rolling Grounds, where you may anchor, in  $4\frac{1}{2}$  to 5 fathoms water, with the tower behind Landguard Fort on with the S.E. corner of the fort, in 3, 4, or 5 fathoms; or with Baudsey and Felixstow cliffs in one, and Harwich low light nearly midway between the Church and high light, bearing N. by W.  $\frac{1}{2}$  W.; these are the marks for the best anchorage. You may then proceed for the harbour, as before directed. In this passage, care must be taken to wait until you are well assured that there is sufficient water to carry you over the Naze Flats.

The Gullet Channel is to the eastward of the Medusa Channel, and runs between the Stone Banks and West Rocks. In it your least depth of water will be 9 feet, the mark being Dr. Frank's white house, near Alderton Church, its own length over the low west end of Baudsey cliff, bearing N.E.  $\frac{1}{2}$  N.; but this mark is not easily to be made out by a stranger. Continue in this direction, until the lighthouses are in one, bearing N.W. by N.; and then proceed with this mark to the Rolling Ground, between the buoys of the Ridge and Andrews. When abreast of the Andrews, steer to the westward, so as to bring the high lighthouse its own breadth open west of the low lighthouse, bearing N.N.W.  $\frac{1}{4}$  W.; then proceed as directed in page 31.

**The WALLET.**—The Wallet is a space or channel lying between the Gunfleet Sand and the shore, and extending from the Gunfleet buoy to the Buxey. On its northern side it is rendered shallow by a *bank* or *flat*, which extends all the way from the West Rocks to the Buxey; the deepest water will therefore be found on its southern or Gunfleet side.

[THAMES.]

There are two entrances to the Wallet; the eastern entrance is through Goldmer's Gat, and the western entrance is from the East Swin through the Spitway.

The mark for the eastern entrance, or Goldmer's Gat, is Walton Hall just open to the right of the tower, bearing N.W.  $\frac{1}{3}$  N. The western entrance is between the Buxey and Gunfleet, and is pointed out by two buoys, as already described.

About  $3\frac{1}{2}$  miles from the Gunfleet buoy, is a large part of the Gunfleet which dries, being covered about  $2\frac{1}{2}$  hours of flood, called the East Knock. Farther on are two other *patches*, which dry at low spring-tides. And at the farther end of the Gunfleet, near the Spitway, is the West Knock, which is covered at half-flood. Between these are swashways, of 2 and 3 feet water.

**COPPERAS BANK.**—The *flat* which stretches along the main land from the West Rocks to the Buxey, extends from 1 to 2 miles off shore. W.  $\frac{1}{2}$  N., 6 miles from the Gunfleet buoy; S.W. by S.,  $4\frac{1}{2}$  miles from Walton Tower; and N.N.W.  $\frac{1}{2}$  W.,  $2\frac{1}{2}$  miles from the Gunfleet beacon, lies the eastern end of the *Copperas Bank*, running from thence  $1\frac{1}{2}$  mile W.N.W.  $\frac{1}{2}$  W.; and the middle of the bank lies directly south from Great Holland Church, distant  $2\frac{3}{4}$  miles. The battery at Burnthouse cliff brought N.N.E., clears its eastern end. The deep-water channel of the Wallet is here but  $1\frac{1}{4}$  mile wide. On the Copperas Bank are  $3\frac{1}{2}$  fathoms, and within it, 4, 3, 2, and 1 fathom, shallowing as you approach the main. Between it and the Gunfleet are 5, 6, and 7 fathoms.

**TRIPOD.**—W.N.W.  $\frac{1}{2}$  W.,  $2\frac{1}{4}$  miles from the west end of the Copperas Bank, is the *Tripod*, a triangular *shoal*, of only 6 feet at low water, lying about  $\frac{3}{4}$  of a mile from the shore.

**ELBOW.**—W.  $\frac{3}{4}$  S.,  $1\frac{1}{4}$  mile from the west end of the Copperas Bank, is the Elbow, with  $3\frac{1}{2}$  fathoms, and  $4\frac{1}{2}$  near its southern side. This bears nearly S.E. from the Tripod, distant a mile.

**RUNCH.**—W. by S. from the Elbow,  $1\frac{1}{2}$  mile, is the *Runch Bank*, having  $3\frac{1}{2}$  fathoms upon it,  $4\frac{1}{2}$  within side, and 5, 6, and 7 fathoms to the southward; it is  $\frac{3}{4}$  of a mile long; its western end bears from the inner buoy of the Spitway N.E.  $\frac{1}{2}$  E., distant  $2\frac{3}{4}$  miles.

To the westward of the GUNFLEET, about  $3\frac{1}{2}$  or 4 miles above the eastern buoy, you will have exceedingly good riding, with S.E., southerly, and S.W. winds, under shelter of the East Knock. When in the King's Channel, being abreast of the buoy on the Gunfleet, with a S.W. wind, and thinking bad weather to be coming on, your best method will be to work up to the northward of the sand, to the distance above mentioned, anchoring in 5 or 6 fathoms, where you will have better riding, with  $\frac{1}{2}$  a cable on the small bower, than you would have had with both anchors a-head, and whole cables out, on the south side of the sand. Vessels having passed through the Swin Spitway into the Wallet, will, by pursuing a direct E.N.E. course from the north buoy of the Spitway, go between the Copperas Bank and the main, to the entrance of the Medusa Channel. An E. by N. course will take them to the southward of the bank, and in deeper water.

To sail out through the Gat, bring the Naze Tower N.W.  $\frac{1}{2}$  N., and with flood-tide steer S.E. by E., with ebb S.E. by S., or according to wind and tide, and the above mark will lead into  $4\frac{1}{2}$ , 6, and 7 fathoms. In working out from the Wallet, you may stand to the northward, until Walton Hall comes on with the Tower, and towards the Gunfleet, into 5 fathoms.

## FROM ORFORDNESS TO YARMOUTH ROADS.

### *Description of the Sand Banks, Buoys, &c.*

THE land about Orfordness is low; and the *shoals* in its vicinity are the *Onion*, *Nathaniel's Knoll*, the *Ridge*, *Aldborough Knapes*, and the *Sizewell Bank*.

**THE OILION** is a *shelf*, or *flat*, which runs out from abreast of Orfordness lower lighthouse, and extends a full cable's length from the point.

**NATHANIEL'S KNOLL** nearly joins the Onion, and was frequently called the Onion by the coasters. It was a small narrow *shoal*, running in a N.E. direction, about  $\frac{1}{2}$  a mile. Its southern part had 12 feet water over it, and lay E.N.E.  $\frac{1}{2}$  E. from the high light, and E. by S. from the low light, distant from the latter  $\frac{1}{2}$  of a mile. On the middle of the knoll were 9 feet, and on its northern end 2 fathoms. Between this knoll and the Onion was a small passage, with from 16 to 4 fathoms water in it; and on the eastern side of the knoll were 5 and 6 fathoms. A black buoy, with the words "Nathaniel's Knoll" painted on its head, was placed on the outer edge of this shoal, in  $3\frac{1}{2}$  fathoms; but the shallows mentioned, both on the Knoll and Onion, having been washed away, and the depth increased, the black buoy has been taken away.

**The RIDGE** is an oval-shaped *sand*, extending above  $\frac{1}{2}$  a mile N.E. by E., its greatest breadth being less than  $\frac{1}{4}$  of a mile, and its least water 2 fathoms. A black buoy is placed on its outer edge, in 4 fathoms water, about  $2\frac{1}{2}$  miles distant from Orfordness Point, with Snape Church to the left of a Martello tower near Slaughden House, bearing N.N.W.  $\frac{3}{4}$  W.; Orford Church and Castle just open of each other, west; and Orfordness high light W.S.W. In consequence of the growing up of this sand to the south-eastward, on which part there are only 13 feet at low water, an additional buoy has been laid on the S.E. edge, abreast of that shoal, and lately removed to a position farther eastward, and now lies with Orfordness high lighthouse W.S.W.; Aldborough Church N.  $\frac{1}{4}$  E.; Aldborough Knapes buoy E.  $\frac{1}{2}$  S.; and Orford Church and Castle in one, W.  $\frac{1}{4}$  N.

The Onion, Nathaniel's Knoll, and the Ridge, may now be considered as a continuation of the same shoal, extending E.N.E.,  $3\frac{1}{2}$  miles from Orford high light, having from  $1\frac{1}{2}$  to 4 fathoms over it.

A *sandy flat*, of 4 fathoms, lines the shore of Aldborough Bay, and stretches from abreast of the Martello tower, all the way to Thorpe Ness.

**ALDBOROUGH KNAPES** extends N.E. and S.W.,  $2\frac{1}{2}$  miles, from the depth of 5 fathoms at each end. This shoal is about  $\frac{1}{4}$  of a mile broad, and has only  $2\frac{1}{2}$  fathoms over the middle, and 4 near each end. The N.E. end lies with Aldborough Church W.N.W.  $\frac{1}{2}$  W., distant 4 miles; and Orford low light W.S.W.  $\frac{1}{2}$  W.,  $6\frac{1}{2}$  miles; its S.W. end lies with Aldborough Church N.W. by N., distant  $3\frac{1}{2}$  miles, and Orford low light W.  $\frac{1}{4}$  S., 4 miles.

**ALDBOROUGH BUOY.**—There is a black-and-white chequered buoy placed near the eastern edge of the sand, in 5 fathoms water, from which Aldborough Church bears N.W.; Orford high light W.  $\frac{3}{4}$  S.; Orford Church and Castle in one, W.  $\frac{1}{4}$  N.; and Iken Church (which has a tower-steeple), N.W. by W., at  $\frac{1}{3}$  of the apparent distance from Aldborough Town to Slaughden House. Orford Church and the ruins of the Castle a sail's breadth open either way, will clear the Knapes to the eastward or westward; Iken Church, midway between Slaughden House and the Martello tower, N.W.  $\frac{1}{4}$  W., will clear it to the southward; and Leiston Church on or open of Thorpe House, N.W. by N., nearly, will clear it to the northward. Between the Ridge and Aldborough Knapes there are 9, 10, and 11 fathoms, sandy bottom.

**SIZEWELL BANK** has, within these few years, considerably increased, and now forms a *shelf*,  $\frac{3}{4}$  of a mile broad, from the south part of Aldborough Town, nearly 6 miles to the north-eastward; the depths over it varying from 4 to  $2\frac{1}{2}$  fathoms, but with only 9 feet at low water over its shoalest part, which lies E.N.E.  $\frac{1}{2}$  E.,  $1\frac{1}{2}$  mile from Thorpe Ness, and  $4\frac{1}{2}$  miles S. by W. from Dunwich Church. The N.E. part of the bank, in 4 fathoms, lies with Blythborough and Dunwich Churches in a line, bearing N.  $\frac{1}{4}$  W. You will clear this part by keeping Blythborough Lodge (a farmhouse standing in the midst of a grove of trees), open to the eastward or right of Dunwich Church. Orford Castle open to the southward of Aldborough Town, or bearing S.W. by W.  $\frac{3}{4}$  W., will lead clear to the eastward of this bank. The shore about Thorpe Ness is rocky. Between it and the south end of Sizewell Bank, are 9, 12, and 15 feet; thence towards the north end of the shoal are from 3 to 4 fathoms, excepting the shoal of 9 feet.

**SIZEWELL BUOY.**—A buoy, coloured black-and-white, in circles, marked "Size-well Bank," lies upon the eastern edge of this shoal, in  $4\frac{1}{2}$  fathoms, with Leiston Church, midway between the Preventive Station House and a red-tiled farm-house and barn, at Sizewell, bearing N.W. by W.  $\frac{1}{2}$  W.; Dunwich Church N. by E.; Orfordness lights S.W.  $\frac{1}{4}$  W.; and Aldborough Church W. by S.  $\frac{1}{2}$  S.

From Thorpe Ness a *sandy flat* continues along shore all the way to the *Barnard Sand*, the water shallowing gradually towards the land. S.E. of the town of Dunwich is the south end of a *sandy shoal*, called the *Dunwich Bank*, having from 4 to  $3\frac{3}{4}$  fathoms over it; its inner edge is distant from the coast  $1\frac{1}{4}$  mile; it runs nearly in the direction of the land, and is about  $1\frac{1}{2}$  mile in length and  $\frac{1}{3}$  of a mile broad; within it are  $5\frac{1}{2}$ ,  $4\frac{3}{4}$ , and 5 fathoms water; and on its outside 5, 6, 7, and 10 fathoms. Covehithe Church well open to the eastward of the low N.E. end of Easton cliff, will clear it from the northward, and Aldborough Church open of Thorpe Ness, will clear it from the southward, to the eastward of the bank, in 5, 6, or 7 fathoms. This part is called Sole Bay.

**THE BARNARD** commences from the shore off Covehithe Ness, and thence extends about N.E.  $\frac{1}{2}$  N.,  $2\frac{1}{2}$  miles; it is  $\frac{1}{4}$  of a mile broad, with only 4 feet on its shallowest part at low water, being steep-to on its eastern side. Midway between the sand and the shore are from 4 to 5 fathoms. The Barnard is joined to the Newcome by a *ridge*, about  $\frac{1}{2}$  a mile wide, with 3 to  $3\frac{1}{2}$  fathoms on it; over this ridge vessels pass from the southward to Lowestoff South Roads.

According to a Trinity House notice, dated 13th August, 1840, a narrow channel has opened between Covehithe Point and the south end of the Barnard Sand, at which time two buoys had been laid down, to facilitate the passage of such vessels as may, under circumstances of emergency, be induced to avail themselves of this passage. The buoys are placed in the following situations, viz.:—a black beacon-buoy, marked "South Inner Barnard," on the inside of the south end of that sand, in 15 feet, at low water, spring-tides, with the chimney of a farm-house on the back land, just touching the outermost tree of Covehithe Wood, W. by S.; Lowestoff Church, its length open eastward of a gap in Kirkley cliff, N.N.E.; S.W. Barnard buoy N.E. by E.; and Southwold Church W. by S.  $\frac{1}{2}$  S. A striped black-and-white buoy, marked "Covehithe Point," in 15 feet water off that point, with a farm-house on with the extreme end of Covehithe Wood, W. by S.  $\frac{1}{2}$  S.; Lowestoff Church steeple, on with the gap in Kirkley cliff, N.N.E.  $\frac{1}{4}$  E.; Southwold Church W. by S.  $\frac{3}{4}$  S.; Covehithe Church W.N.W.; and Kessingland Church, north. The above buoys bear from each other W. by S.  $\frac{1}{4}$  S. and E. by N.  $\frac{1}{4}$  N., and the width of the channel is 180 fathoms.

**BARNARD SOUTH-WEST BUOY**, painted red, is laid on the S.W. end of the Barnard Sand, in 6 fathoms, with Southwold Church tower, twice its apparent breadth open southward of the houses upon Easton Ness, bearing S.W. by W.  $\frac{1}{2}$  W.; Lowestoff Church, on with the highest windmill at Kirkley, N.N.E.; Covehithe Church tower W.  $\frac{1}{2}$  N.; and Kessingland Church tower N. by W. To lead clear of this end of the Barnard, keep Southwold Church at least twice its apparent breadth to the left of Easton houses, which stand within Easton cliff.

**BARNARD NORTH BUOY.**—A black-and-white chequered buoy, with staff and ball, is laid on the N.E. end of the Barnard Sand, in 3 fathoms, with Southwold Church on with Easton Ness point, S.W.  $\frac{1}{2}$  W.; Kessingland Church W. by N.  $\frac{1}{2}$  N.; Lowestoff Church N. by E.; and Pakefield Church north, a little westerly.

**PAKEFIELD LIGHTHOUSE.**—This lighthouse, which was established by the Trinity House in 1832, is situated a mile to the south-westward of Pakefield Church; it is a white tower, 23 feet high, on which is fixed a light, elevated 68 feet above the level of the sea, and is visible 5 leagues off, from S.E. by E.  $\frac{1}{4}$  E. to S.E.  $\frac{3}{4}$  S. This light is intended to lead vessels between the Barnard and Newcome Sands, into and out of the Lowestoff South Roads.

It having been found that vessels coming from the southward, and bound into *Lowestoff Roads*, had been led into situations of danger, by mistaking the light

from the windows of houses upon the cliff at Kessingland, for the Pakefield light, the Trinity House, according to a notice dated April 22nd, 1835, ordered, that the light from the lighthouse in future to be red, instead of white, as formerly.

As the soundings, in approaching the coast from the sea to the northward of Lowestoff, are very irregular, and the soundings off Lowestoff so regular, that they may be depended on, ships, when coming from seaward, should endeavour to make the land in the latitude of Lowestoff, which is  $52^{\circ} 29'$  north. In this latitude they may steer boldly in by night or day, until they come into 17 or 16 fathoms; for in the night-time the lights may be seen 3 or 4 leagues off; and in day, the church and upper part of the town may be discovered at the distance of 7 leagues, if the weather be clear.

*Shoals and Buoys, &c. in the vicinity of Lowestoff and Yarmouth.*

**THE LOWESTOFF NEWCOME** is a narrow *ridge of sand*, lying in a S.W. by S. and N.E. by N. direction, and forming the western side of the Stanford Channel, and the eastern side of the Lowestoff South Road; its southern end being about a mile distant from the Lowestoff shore, and its northern end rather more than  $\frac{1}{2}$  a mile from the Ness point. This shoal having shifted its position, additional buoys are placed upon it.

**INNER LOWESTOFF SHOAL.**—This shoal has lately grown up, and lies between the entrance to Lowestoff Harbour and the South Ness, at about  $\frac{1}{3}$  of a mile from the shore. It has on it from 11 to 15 feet; and a black-and-white chequered buoy is placed on its eastern edge. An additional black buoy has lately been placed on its western edge.

**LOWESTOFF INNER CHANNEL.**—Vessels from the southward may use the Lowestoff Inner Channel, where buoys have been placed for their guidance; these consist of four black buoys on the western edge of the Newcome, which, in proceeding northward, are to be left on the starboard or eastern side; and the Inner Shoal buoys may also be left on the starboard side, having 17 feet at low water within them. The following are the marks and bearings of the buoys:—

**SOUTH NEWCOME** (black), with staff and ball, lies  $1\frac{1}{4}$  mile N.N.E.  $\frac{1}{4}$  E. from the chequered beacon-buoy on the N.E. end of the Barnard. From this buoy Pakefield lighthouse bears W. by N.  $\frac{1}{2}$  N.; and Pakefield windmill, in a line with the N.E. end of a barn on the cliff, N.N.W.  $\frac{1}{4}$  W.

**S.W. NEWCOME** (black) lies in 4 fathoms, at  $\frac{1}{2}$  a mile north from the Newcome south buoy, with Pakefield lighthouse bearing W.  $\frac{1}{2}$  S.; and Lowestoff mill, in a line with the centre of the harbour-master's house, N. by E.  $\frac{1}{4}$  E.

**N.W. NEWCOME** (black) lies in 4 fathoms, at  $\frac{3}{4}$  of a mile N.N.E.  $\frac{3}{4}$  E. from the Newcome S.W. buoy, with Pakefield lighthouse S.W. by W.  $\frac{3}{4}$  W.; and Lowestoff low lighthouse N.N.E.  $\frac{1}{4}$  E.

**NORTH NEWCOME** (black) lies in  $3\frac{3}{4}$  fathoms, at nearly  $\frac{3}{4}$  of a mile N.E. by E. from the N.W. buoy, with Lowestoff lower lighthouse N.  $\frac{1}{4}$  W.; Lowestoff Church spire, in a line with the N.E. end Lowestoff Preventive Station House, N. by W.  $\frac{1}{2}$  W.

**THE INNER SHOAL BUOY** chequered (black-and-white) has lately been removed  $1\frac{1}{2}$  cable's length in a S.E. direction, and now lies in  $2\frac{3}{4}$  fathoms, with Lowestoff Church spire N.W.  $\frac{1}{2}$  N.; Pakefield mill W. by S.  $\frac{1}{2}$  S.; and the Inner Shoal buoy (black) W.  $\frac{3}{4}$  N.

**WESTERN INNER SHOAL BUOY** is black, and lies in 14 feet water, with Lowestoff Church spire just open of the east end of the new Chapel, N.N.W.  $\frac{1}{4}$  W.; Pakefield Church just open south of the town, S.W. by W.  $\frac{3}{4}$  W.; Stanford light-vessel E. by S.

**STANFORD LIGHT-VESSEL**, which carries two lights, placed horizontally, 23 feet above the sea, visible 3 leagues off, lies with Corton Church and windmill in one, N.  $\frac{1}{4}$  W.; Pakefield windmill, in line with the northernmost house in Pakefield; and Lowestoff high light N.N.W.  $\frac{1}{2}$  W.

**LOWESTOFF NEW HARBOUR.**—Between Pakefield and Lowestoff is the entrance to this harbour, being about  $\frac{1}{4}$  of a mile to the south-westward of the low

lighthouse. The harbour is formed by Lake Lothing, now connected with the sea on the east, and by means of new cuts and canals westward, with the Rivers Waveney and Yare, thus communicating with the City of Norwich, and which is now enabled to receive vessels of 200 tons burthen.

**STANFORD CHANNEL.**—In June, 1836, the Old Stanford Channel became so shallow, by the continual shifting of the sands in this neighbourhood, as to render it, at that time, unsafe to navigate; and accordingly the then buoys were taken up, and the Lowestoff Inner Channel buoyed, as before described. But in the early part of 1843, from the recent alterations, which had then been for a considerable time in progress in and about the Newcome and Holm Sands, having rendered the Stanford Channel again navigable, notice thereof was given, that the Corporation of Trinity House had caused the said channel to be buoyed out.

By a Trinity House Notice, dated London, 2nd April, 1846, it appears that the East Newcome and South Holm Sands having shifted, the East Newcome buoy (red) and the South Holm buoy (black) have been moved in a southerly and westerly direction, and now lie nearly 2 cables' length distant from each other, with 14 and 15 feet water between them, and with the following marks and bearings, viz.:—

**EAST NEWCOME BUOY** (red) lies in  $2\frac{1}{2}$  fathoms, with Lowestoff low lighthouse, in line with a high chimney at that place, N.  $\frac{1}{2}$  W.; Pakefield Church, midway between Pakefield mill and a red-tiled house, W.N.W.; South Holm buoy E.S.E.; Stanford light-vessel N. by E.  $\frac{3}{4}$  E.; and Holm Hook buoy N.E. by N.

**SOUTH HOLM BUOY** (black) lies in  $2\frac{1}{2}$  fathoms, with the chancel end of Lowestoff Church, touching the red-tiled building to the left of the Preventive Station, N. by W.  $\frac{1}{2}$  W.; Pakefield Church, midway between Pakefield mill and a red-tiled house, W.N.W.; Stanford light-vessel N. by E.  $\frac{1}{4}$  E.; and Holm Hook buoy N.N.E.

The above two buoys mark the southern entrance of the channel, and lie 2 cables' length apart.

A black-and-white chequered buoy on the west hook of the Holm, marked "Holm Hook," in 6 fathoms, with Lowestoff Church tower, in line with Lowestoff low lighthouse, N.W. by N.; a six-vane windmill, west of Kirkley, in line with Kirkley north windmill, N.W. by W.  $\frac{1}{2}$  W.; Stanford light-vessel N. by W.  $\frac{3}{4}$  W.; and S.W. Corton buoy N. by E.  $\frac{3}{4}$  E.

Mariners are to observe, that the tides in the Stanford Channel set N.E. and S.W., and that the light-vessel must always be passed to the eastward. The course through the channel is N. by E.  $\frac{1}{2}$  E. and S. by W.  $\frac{1}{2}$  W., nearly.

**THE HOLM AND CORTON SANDS** lie to the eastward and northward of the Newcome and the Stanford Passage. The *Holm* is a large *sandy flat*, which dries in some parts, and now joins an extensive *bank* called the *Corton*. These sands stretch along in a direction parallel to the shore, full 6 miles, and form the eastern boundary of Lowestoff and Corton Roads. Several parts of the latter dry at low water, especially one patch, which is 6 feet high at low water spring-tides, at  $1\frac{1}{2}$  mile S.E. by S. from Lowestoff low light. On the west side of the Corton are three black-and-white chequered buoys; and on the eastern side of the Holm and Corton, are six black buoys (in addition to the one marked "South Holm," and described before), laid down with the following marks and bearings:—

**WEST CORTON** (chequered black-and-white) in 5 fathoms, with Yarmouth Church just open to the eastward of a white house situated on the south part of Yarmouth Denes, N.  $\frac{1}{2}$  E.; Lowestoff low light, over a fish-house on Lowestoff Denes, S.W.  $\frac{1}{2}$  S.; and Corton Church steeple, over a red-tiled white house on Corton cliff, W.N.W. From this buoy the Corton Sand, which is here about  $1\frac{1}{2}$  mile wide, continues narrowing to a point, where it terminates at the N.W. Corton buoy, and forms the western boundary of St. Nicholas Gat.

**MIDDLE CORTON BUOY** (chequered black-and-white).—A *ridge* having grown up in a westerly direction between the west and S.W. buoys, a chequered buoy, marked "Middle Corton," has been placed thereon, in  $3\frac{1}{2}$  fathoms, with Lowestoff Church S.W. by W.  $\frac{1}{2}$  W.; West Corton buoy N.E.; and the S.W. Corton buoy, south.

**S.W. CORTON** (chequered black-and-white) in 5 fathoms, lying S.S.W.,  $1\frac{1}{2}$  mile from the West Corton buoy, with Lowestoff high light W.S.W.  $\frac{1}{4}$  W.; and Corton Church N.N.W.  $\frac{1}{4}$  W. The buoy marked "Holm Hook," before described.

**S.E. HOLM** (black) lies in  $6\frac{1}{2}$  fathoms, with Lowestoff Church spire, in a line with the low lighthouse, N.W. by N.; Pakefield Church tower, its length open south of Pakefield windmill, W. by N.; and the N.E. Holm buoy N.E.

**MIDDLE HOLM** (black), in 8 fathoms, with Lowestoff mill, in line with the northernmost house at Lowestoff, bearing N.W. by W.  $\frac{1}{4}$  W.; Nelson's Monument, in line with the highest mill west of Yarmouth, N.  $\frac{1}{4}$  W.; S.E. Holm buoy S.W. by W., westerly; and N.E. Holm buoy N.E. by N.

**N.E. HOLM** (black), in 8 fathoms, with Lowestoff mill, in line with the north part of Lowestoff battery, west; Gorleston north mill, in line with Yarmouth south pier-head, N. by W.  $\frac{1}{2}$  W.; and S.E. Corton N.  $\frac{3}{4}$  E.

**S.E. CORTON** (black), in 6 fathoms, with the channel of Gorleston Church, in line with the pilot-house on the south pier-head, N.N.W.  $\frac{1}{4}$  W.; Lowestoff windmill, apparently midway between Lowestoff Church and a grove of trees, W. by S.  $\frac{3}{4}$  S.; and N.E. Corton buoy N.  $\frac{1}{2}$  W.

**N.E. CORTON** (black), in 5 fathoms, with Lowestoff high light S.W. by W.; and the S.E. Corton S.  $\frac{1}{2}$  E., distant a mile.

**CORTON SPIT** (black), in 4 fathoms, with Corton Church W. by S.  $\frac{1}{4}$  S.; and the N.E. Corton S.  $\frac{1}{2}$  E., distant  $\frac{3}{4}$  of a mile.

**N.W. CORTON** (black), in  $2\frac{3}{4}$  fathoms, with Yarmouth Church, in a line with a high mill (Harrison's), and the new bathing house north of the jetty, N. by W.; St. Nicholas light-vessel E. by N.; Corton spit buoy S.  $\frac{3}{4}$  E.; and South Scroby buoy E.S.E.

The chief passage into **YARMOUTH ROADS**, for ships of great draught of water, has always been between the Corton Sand, on the western side, and St. Nicholas Bank, or Kettle Bottom, on the eastern side, generally called St. Nicholas Gat. This channel is pointed out by three black buoys on the eastern edge of the Corton Sand, (before described,) and a red buoy and a light-vessel on the western edge of the St. Nicholas Bank. It is about  $\frac{1}{2}$  of a mile wide, with a depth of from  $5\frac{1}{2}$  to 6 fathoms at low water.

**ST. NICHOLAS BANK, or KETTLE BOTTOM**, is a long narrow sand, about  $1\frac{1}{2}$  mile in length from south to north, having on it from  $1\frac{1}{2}$  to 3 fathoms, and marked out by the following buoys and a light-vessel:—

*Trinity House Notice, London, April 2nd, 1846.*—In order to facilitate the navigation into and out of Yarmouth Roads, through the wide and deep-water channel between the Scroby and St. Nicholas, or Kettle Bottom Sand, commonly called Hewitt's Channel, the St. Nicholas light-vessel has been moved to the position previously occupied by the red buoy, at the southern end of St. Nicholas (otherwise Kettle Bottom) Sand; and that the said red buoy has been placed about  $\frac{1}{2}$  of a mile to the southward of the position from which the said light-vessel has been removed: also that the chequered buoy on the south end of the Scroby Sand has been replaced, in precisely the same spot, by a black beacon nun-buoy, of a large size.

**ST. NICHOLAS LIGHT-VESSEL**, as now placed, is moored in  $4\frac{1}{2}$  fathoms, with the following marks and compass-bearings, viz.:—Yarmouth new Church, in line with Victoria-terrace, N. by W.  $\frac{3}{4}$  W.; the south part of the Grove, touching the north side of the fence of Nelson's Monument, N.W.  $\frac{3}{4}$  N.; the second house north of Gorleston south mill, in line with the inner part of Gorleston south pier, N. by W.  $\frac{1}{4}$  W.; South Scroby buoy S.E.; Scroby Fork buoy N.E.  $\frac{1}{4}$  N.; North St. Nicholas buoy N.  $\frac{3}{4}$  E.; and N.W. Corton buoy W. by S.

The red buoy, called the *South buoy of St. Nicholas*, as now placed, lies in  $3\frac{1}{4}$  fathoms, with Yarmouth old Church, in line with the outer part of Yarmouth jetty, N.W. by W.; Gorleston south mill, in line with the inner part of Gorleston south pier, N.W. by W.; St. Nicholas light-vessel S.E.; North St. Nicholas buoy N.N.E.; and N.W. Corton buoy S. by W.



**NORTH NICHOLAS** (black), with staff and ball, has been removed in a southerly direction, and now lies in  $4\frac{1}{2}$  fathoms, with Yarmouth old Church N.N.W.  $\frac{1}{4}$  W.; Scroby Fork buoy S.E. by E.  $\frac{3}{4}$  E.; and the S.W. Scroby buoy N.N.E.  $\frac{3}{4}$  E.

It appears from a recent Admiralty Survey, made by Captain W. Hewett, R.N., that a new channel is now open between the St. Nicholas and Scroby Sands,  $\frac{1}{2}$  a mile in width at its northern, and  $\frac{3}{4}$  of a mile at its southern boundary, with from 6 to 9 fathoms, in a N.  $\frac{1}{4}$  W. and S.  $\frac{1}{4}$  E. bearing, which is marked out by the St. Nicholas light-vessel and north beacon-buoy on the port or larboard, or western side; and by three buoys of the Scroby on the starboard or eastern side. The former of these have been already described; and those on the Scroby lie with the following marks and bearings:—

**SOUTH SCROBY** (a black beacon nun-buoy) lies in  $3\frac{1}{2}$  fathoms, with the chancel end of Lowestoff Church, in a line with the south part of the red-tiled farm buildings, (Mr. Taylor's) near Lowestoff, bearing S.W.  $\frac{1}{4}$  W.; Southern mill at Old Town, on with the northern end of the Naval Hospital, N.W.  $\frac{3}{4}$  N.; and the Scroby Fork buoy N.  $\frac{1}{2}$  W.

**SCROBY FORK** (striped black-and-white), in  $5\frac{1}{2}$  fathoms, with the southernmost mill at Gorleston, in one with the pilot-house on the pier-head, bearing W.  $\frac{1}{4}$  N.; Yarmouth Chapel, on with the jetty head, N.W.  $\frac{3}{4}$  N.; and the S.W. Scroby buoy N. by W., distant a mile.

**S.W. SCROBY** (chequered black-and-white), in 5 fathoms, with the chancel end of Yarmouth Old Church, N.W.  $\frac{1}{4}$  N.; Hemesby Church N.  $\frac{3}{4}$  W.; and Gorleston Pier W.S.W.

**SCROBY ELBOW BUOY**, (chequered black-and-white).—The Scroby Elbow Sand having extended to the westward, between the S.W. and west buoys, a chequered buoy, marked "Scroby Elbow," has lately been placed in 11 fathoms, with Lacon's Brewery chimney, midway over the south wing of the Silk Factory, bearing W. by N.  $\frac{1}{2}$  N.; West Scroby buoy N.N.E.  $\frac{1}{4}$  E.; and S.W. Scroby buoy S.  $\frac{1}{4}$  W.

## DIRECTIONS FOR SAILING FROM ORFORDNESS TO YARMOUTH ROADS.

**VESSELS** proceeding from Orfordness towards Yarmouth, should bring Baudsey cliff well open of Orford beach, bearing W.S.W.  $\frac{3}{4}$  W., until Aldborough Church bears N.N.W.; then steer directly N.E., 18 or 19 miles, or until the lighthouses of Lowestoff appear in a line, bearing N. by E.; this course will take them between Aldborough Knäpes and the Ridge and Sizewell Bank. In turning to windward, you may stand in-shore to 9, 8, and 7 fathoms, and off to 12 or 14 fathoms, the soundings being regular; but do not bring the lower light of Orfordness to the westward of W. by S., lest you should run on the Knäpes; observe also, not to bring the said lighthouse to the southward of S.W.  $\frac{1}{2}$  W., or you may approach too near the Sizewell. The leading-mark taking you through between these shoals, is Orfordness lights in one, bearing S.W. by W.  $\frac{1}{4}$  W. By night, to avoid the Ridge, you must not bring the high light to the southward of W. by S.  $\frac{1}{2}$  S. until you have passed it nearly 4 miles, for the shoalest part of the bank lies nearly E.N.E.,  $3\frac{1}{2}$  miles from the high light. These precautions will also be necessary when bound to the southward, for by keeping the lights in one, after passing the Sizewell, will take you within the Ridge; to avoid which, the high light should be opened to the southward of the low light in time. Blythborough Lodge open to the northward of Dunwich Church, clears the north end of the Sizewell.

**ALDBOROUGH BAY** lies between the Ridge and Sizewell. A *sandy flat* runs off the shore; but there is good anchorage with off-shore winds, in 7, 8, or 9 fathoms, Orfordness lower light bearing S.W.  $\frac{1}{2}$  W., and Aldborough Church N.W. by W.  $\frac{3}{4}$  W.

**SOUTHWOLD or SOLE BAY**, lies between the Sizewell and the Barnard. The anchorage there is good, with off-shore winds, in 8 and 9 fathoms, within  $\frac{1}{2}$  a mile of the shore; but in approaching the Barnard, you must not get into less than 9 fathoms water, for its edges are steep, and there are 8 fathoms close to its eastern side. There is now a red buoy placed on the S.W. edge of the Barnard.

If intending to pass through Lowestoff Inner Channel, when you are off the south end of the Barnard, in 7 fathoms water, and Southwold Church is at least twice its apparent breadth open to the left of the houses at Easton, which is the mark for clearing the south end of the Barnard, continue with that mark on, until Pakefield lighthouse bears N.W.; steer towards it in that direction, passing over the flat between the Barnard and Newcome Sands, with 3 to  $3\frac{1}{2}$  fathoms at low water, until Covehithe Church is in a line with the extreme of Kessingland fish-houses. Keeping this mark on, will lead through the Lowestoff South Road, between the Newcome and the Lowestoff Inner Shoal. Pakefield mill and barn in one, bearing N.N.W.  $\frac{1}{2}$  W., will also lead in, and clear the south end of the Newcome, in 16 feet at low water, until the above mark comes on. At night, bring Pakefield light N.W., and keep it so until Lowestoff low light bears N.E. by N., then proceed in that direction until the Stanford light-vessel bears about E.N.E. or E. by N.; steer towards it, and having passed it to the westward, continue in a N.N.E. direction to Lowestoff North Road, and to Yarmouth Roads; or, by keeping within 2 cables' length of the beach when passing the lower light, you may pass within the Inner Shoal, in 16 to 17 feet at low water. Vessels working in between the Barnard and the Newcome, must tack immediately on losing sight of the Pakefield light.

**THE STANFORD CHANNEL** is now become again navigable, and buoyed out, as described in page 38. The mark for running in between the buoys that mark the southern entrance, is to bring the Stanford light-vessel N. by E.  $\frac{1}{2}$  E., and run in with the mark on, until abreast of the Holm Hook buoy, when you may steer N.N.E. for Lowestoff and Yarmouth Roads.

**ST. NICHOLAS GAT.**—Vessels proceeding from Orfordness to Yarmouth Roads by the Gat, or Channel between the Corton and St. Nicholas Sands, having, by the foregoing directions, cleared the Ridge, and other dangers about Orfordness, and advanced, with the Orford lighthouses in one, 6 or 7 miles, will then be abreast of the Sizewell Bank, and may pursue a N.E. course for about 7 leagues, which will carry them to the entrance of the Gat.

The best leading-marks into or out of the Gat are, Yarmouth Church over the end of the jetty, bearing nearly N. by W., or Yarmouth Chapel on with a white mill near the jetty; or Gorleston Church N.W.  $\frac{1}{2}$  N., is a good mark.

The channel between the N.W. buoy of the Corton Sand and the St. Nicholas light-vessel is about  $\frac{1}{2}$  of a mile wide, and the least depth mid-channel is  $5\frac{1}{2}$  fathoms at low water; the soundings are very regular: and having passed through the Gat, you suddenly get into 9 and 10 fathoms, which depths gradually lessen as you advance towards the pier.

The anchorage in Yarmouth Roads is extensive, and there is room for any number of ships; the ground is *sandy*, and ships sometimes, in heavy gales from the N.N.E., and S.S.W., are apt to bring home their anchors.

**TIDES.**—It is high water at Yarmouth Roads, on the full and change of the moon, at 40 minutes after 8, and the spring-tides rise 6 feet, but the flood-stream continues to run to the southward till half after 10. At Lowestoff it is high water on the shore at 9 o'clock; the tides rise  $7\frac{1}{2}$  feet, and the flood-stream runs till half after 10. At Orfordness it flows on the shore until 40 minutes after 10, and the flood continues till 11; spring-tides rise 11, neaps  $6\frac{1}{2}$  feet.

## FROM YARMOUTH AND ORFORDNESS TO THE DOWNS.

*Description of the Sand Banks, &c.*

IN this outer track are some *dangerous shoals*, namely:—the *Inner* and *Outer Gabbards*, the *Gallop*, the *Four Mile Knolls*, the *Falls*, the *Long Sand*, and *Kentish Knock*; the two latter may be considered connected with the sands that so greatly impede the entrance to the Thames; but the others are separated, and lie at a considerable distance from them.

**THE INNER GABBARD** is a *shoal*, about  $6\frac{1}{2}$  miles in length, lying N.E.  $\frac{1}{2}$  N. and S.W.  $\frac{1}{2}$  S., having on its shallowest part 2 fathoms at low water. This is about the extent of 2 miles in the central part of the shoal, but on the other parts are from 4 to 10 fathoms. Upon the central part a black buoy is placed, with Orfordness high light N.N.W.  $\frac{1}{2}$  W., distant about 15 miles; the South buoy of the Shipwash W.N.W.  $\frac{3}{4}$  W., 12 miles; the Sunk light-vessel W.  $\frac{1}{2}$  S., about 18 miles; and the Gallop light-vessel S. by W.  $\frac{3}{4}$  W., 11 miles. On the other parts are from 3 to 9 fathoms; it is steep-to, and at  $\frac{1}{2}$  a mile distant on each side are 13 to 16 fathoms.

**THE OUTER GABBARD**—About 4 miles to the eastward of the Inner is the Outer Gabbard, a *narrow shoal*, of about  $3\frac{1}{2}$  miles in length, but divided into two parts by a narrow swashway. This shoal lies N.N.E. and S.S.W., and has from 9 to 3 fathoms on it; the north end bearing S.E.  $\frac{1}{2}$  E., distant  $18\frac{1}{2}$  miles from Orfordness high lighthouse. A buoy, striped red-and-white, is placed on this shoal: in the least water, at about a mile from its N.N.E. end, with Orfordness lighthouses bearing N.W., distant  $18\frac{3}{4}$  miles; the south buoy of the Shipwash W.  $\frac{3}{4}$  N., 18 miles; the Sunk light-vessel W.  $\frac{1}{2}$  S.,  $24\frac{1}{2}$  miles; and the Gallop light-vessel S.W.  $\frac{1}{4}$  S., nearly 14 miles. This shoal is also steep-to: and there are from 15 to 17 fathoms within  $\frac{1}{2}$  a mile of it all around. The buoys of the Inner and Outer Gabbards bear from each other east and west, distant 6 miles.

There is a constant rippling of the tide over both these shoals, excepting at slack water, by which their situation may be readily known, should the weather be so hazy as to prevent the buoys from being seen. Between the Inner Gabbard and the Gallop there are from 13 to 15 fathoms water.

**THE GALLOP** is a very *dangerous shoal*, having on some places, not more than 8 feet at low water. It extends 5 miles N.E. and S.W., from 7 fathoms at each end, and is not a mile across at the broadest part, which is near the middle. This part lies S. by E.  $\frac{1}{2}$  E. from the high light at Orfordness, distant 23 miles; E.S.E.  $\frac{1}{2}$  E. from the buoy on the Long Sand Head, distant 13 miles; E. by N., 13 miles from the Kentish Knock light-vessel; and N.E. by E.  $\frac{1}{2}$  E., 31 miles from the North Foreland lighthouse. The shallow part of this sand extends full 4 miles, having only  $1\frac{1}{2}$ , 2, 3, or in some spots, 4 fathoms. The sea commonly ripples over it. Near the south-west end a light-vessel is moored, in 15 fathoms, on which are exhibited two lights, placed horizontally, on two separate masts, elevated 32 feet above the level of the sea. This vessel bears about S.W. by W.  $\frac{1}{4}$  W., 2 miles from the above-mentioned shoalest part of the sand, and lies in latitude  $51^{\circ} 45'$  north, and longitude  $1^{\circ} 55\frac{1}{2}'$  east. About  $\frac{3}{4}$  of a mile to the south-eastward of the light-vessel lies a black buoy, which will point out the usual position of the vessel, should it be removed by any accident. The light-vessel bears from Orfordness high light S.  $\frac{3}{4}$  E., 24 miles; the North Foreland lighthouse N.E. by E.  $\frac{1}{2}$  E.,  $28\frac{3}{4}$  miles; and from the Long Sand Head E.S.E.  $\frac{1}{2}$  S., 12 miles.

The tide flows here, full and change, till  $\frac{3}{4}$  after 11, running nearly 3 knots. The flood commences from the N.E., then E.N.E. The channel between the Gallop and the Long Sand Head is about 12 miles wide, and has from 20 to 17 fathoms in it, shoaling gradually as you approach the Long Sand Head. On the east side of the Gallop are 12, 16, 18, and 20 fathoms; at 3 miles distant are 27 fathoms, *coarse sand*, with small black stones; near to the south end are 14 fathoms, the

ground stony; about  $\frac{3}{4}$  of a mile outside the north end are 14 fathoms, with coarse stones; and close to this end are 9, 8, and 7 fathoms.

On the Admiralty chart of the Thames, a *new shoal* is laid down, extending S.W.  $\frac{1}{2}$  S., 5 miles, from 9 fathoms at each end, on which are some *patches*, with only 4 and  $4\frac{1}{2}$  fathoms. The northern one lies S.S.W., about  $3\frac{1}{2}$  miles from the buoy of the Galloper. S.W. by S. from this spot is another, with a similar depth, about  $\frac{3}{4}$  of a mile distant. The soundings at about  $\frac{1}{2}$  a mile from the east side are from 19 to 14 fathoms, and on the west side rather more. The distance between the north end of the shoal and the south end of the Galloper is above 2 miles, with 16 to 20 fathoms.

These *shoals* are called, in Captain Hewett's survey, the *Four Miles' Knoll*, and are situated on and connected with the North Falls, and continue in a S.W.  $\frac{3}{4}$  S. direction, having on it 7, 9, and 10 fathoms, to the latitude of  $51^{\circ} 35'$ , where it deepens to 13, 14, 12, and 17 fathoms, and turns in a S.W. by W. direction, to the latitude of  $51^{\circ} 28'$ , where commences what may be termed the South Falls: these stretch down to the latitude  $51^{\circ} 13'$ , and are scarcely more than a mile across in any part, the shoalest water being  $4\frac{1}{2}$  and 5 fathoms, and this in the latitude from  $51^{\circ} 22'$  to  $51^{\circ} 17'$ , about  $6\frac{1}{2}$  miles to the eastward of the Goodwin light-vessel, and between which there are from the Falls, 24, 28, 30, then 13, 12, and 10 fathoms to the light-vessel.

The **LONG SAND** extends to the northward so far as  $51^{\circ} 45\frac{1}{2}'$  north, where it terminates in a point about  $\frac{3}{4}$  of a mile broad, having  $4\frac{1}{2}$  fathoms near it; this point, called the Long Sand Head, bears from the Galloper light-vessel N.W. by W.  $\frac{1}{2}$  W., distant 12 miles; from the Gunfleet beacon S.E. by E.  $\frac{1}{2}$  E., 10 miles; and from the south buoy of the Shipwash S. by W.  $\frac{1}{2}$  W., distant 8 miles. Close to the eastward of the sand head are 5 and 6 fathoms, deepening suddenly to 8 and 9 fathoms. A black buoy is placed at this sand head, about  $1\frac{1}{2}$  mile to the south-westward of the buoy. The Long Sand is  $2\frac{1}{2}$  miles broad, having 15 to 18 feet on it. This buoy lies in 6 fathoms at low water, with the Sunk light-vessel bearing N.W. by W., distant 5 miles; the Kentish Knock light-vessel S.  $\frac{1}{4}$  W.; and the Naze Tower N.W.  $\frac{1}{2}$  N., just touching the S.W. side of Walton Hall. The Naze Tower bearing N.W., will lead clear through Goldmer's Gat, and past the Long Sand Head, in 9 and 10 fathoms.

The **KENTISH KNOCK** is a *dangerous* and *extensive shoal*, lying in nearly a S.W. and N.E. direction, its length being 7 miles, and its broadest or middle part 2 miles; its N.E. end bears from the Galloper light-vessel W.  $\frac{3}{4}$  N., distant 12 miles, and from the Long Sand Head buoy S. by W., distant  $4\frac{1}{2}$  miles; its S.W. end bears from the Galloper light-vessel W. by S., distant 16 miles, and from the North Foreland lighthouse N.E.  $\frac{1}{4}$  N., almost 14 miles. A considerable part of this sand dries at low water, and the whole of it is shallow, with from 3 to 6 feet, though in some places there are 2 and 3 fathoms.

**KENTISH KNOCK LIGHT-VESSEL.**—This vessel is moored on the east side of the sand, a short distance to the eastward of the situation in which the beacon-buoy formerly laid. The light on board this vessel is exhibited from a single lantern; it revolves, and burns at an elevation of 38 feet above the level of the sea. This vessel is furnished like the other vessels of the Corporation of Trinity House, with a ball at the mast-head; but in addition thereto, it is surmounted by a second ball, of similar size, whereby she may be distinguished with certainty, under all circumstances, during the day-time.

This light-vessel bears from the Galloper light-vessel W.  $\frac{1}{2}$  S., 11 miles; from the North Foreland lighthouse N.E.  $\frac{1}{2}$  E., 19 miles; and from the Sunk light-vessel S.S.E., 10 miles. There is also a watch-buoy laid down about  $\frac{1}{4}$  a mile to the westward of the above light-vessel. This watch-buoy is black, with its head half white, and the words "Kentish Knock" painted upon it. Close to the south-eastern side of the sand, which is steep-to, are 5, 6, 8, and 9 fathoms, the ground generally soft and muddy; very near its northern extremity are 10 and 11 fathoms; and between

it and the Long Sand, 8, 9, 10, and 12 fathoms. There is a passage between it and the Long Sand,  $2\frac{1}{2}$  miles wide; but no vessel must attempt to run through without the greatest necessity.

**The GOODWIN LIGHT-VESSEL** exhibits three bright lights, on separate masts, at 35 and 23 feet above the level of the sea; it lies N.E., nearly 2 miles from the nearest part of the North Sand Head that dries at low water, in 10 fathoms, with the North Foreland lighthouse N.W. by N.,  $6\frac{1}{2}$  miles; Ramsgate Pier lighthouse N.W. by W.  $\frac{1}{2}$  W.,  $6\frac{1}{2}$  miles; and the South Foreland high light S.W. by W.  $\frac{1}{2}$  W.,  $13\frac{1}{2}$  miles.

In order to distinguish these lights from the two Foreland lights, they are exhibited in such a manner, that the middle light appears considerably higher than the two extreme lights, forming an erect triangle; so that they can never be mistaken; and in foggy or hazy weather, a gong is constantly struck on board of her, to warn ships that they are near the North Sand Head. The situation of this light-vessel renders it impossible for vessels to get upon the North Sand Head, or any part of the Goodwin, if proper attention be paid to the three following short and clear directions, viz.:—

1st.—The grand intention of the Goodwin lights being to keep vessels to the eastward of the Goodwin; the masters of all ships and vessels, in coming from the North Sea towards the Strait of Dover, must be careful not to bring the Goodwin lights to bear more southerly than S.S.W., by compass; but, on the contrary, should always keep the lights rather to the westward than to the southward or eastward of that bearing, while they are to the northward of them, and they will be sure then to pass far enough to the eastward of every part of the Goodwin, by steering a S. by W. course after they have passed the lights.

2dly.—The masters of vessels coming from the Strait of Dover towards the North Sea, must be careful not to shape a northerly course until the Goodwin lights bear N. by E., by compass; but, on the contrary, they should always keep the lights rather to the northward of that bearing than to the eastward of it, while they are to the southward of them, and they will then be sure to pass far enough to the eastward of every part of the Goodwin.

3dly.—Should any vessel coming from the North Sea towards Dover Strait, be prevented by wind or tide, or otherwise, from proceeding to the southward, at the back of the Goodwin, or to the eastward thereof, the master can, by a single bearing of the Goodwin lights, anchor under the North Sand Head, in 6 or 7 fathoms, clean ground, and ride there as safely as the light-vessel does: in order to do which, he should keep to the northward of the light-vessel; and when that bears nearly south, anchor about  $1\frac{1}{2}$  mile from it. Or, should he prefer getting in to the westward of the Goodwin, so as to have the Gull Stream open, he may run in to the northward of the Goodwin, upon a N.W. course, until he judges he has run  $2\frac{1}{2}$  or 3 miles within, or to the N.W. of the lights, and then anchor, in 7 or 8 fathoms, the lights bearing from you S.E.

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## DIRECTIONS FOR SAILING FROM YARMOUTH TO ORFORDNESS, AND THENCE TO THE DOWNS, &c.

**VESSELS** proceeding from Yarmouth Roads for Orfordness must run out through St. Nicholas Gat, with the marks as before directed; and when they have passed to the southward of all the buoys, steer S.W., 7 or 8 leagues, which course will take them between the Sizewell and Knapes, until they bring Orford lights in one, taking care, when approaching Orfordness, to clear the Ridge and Nathaniel's Knoll, until they get Baudsey cliff well open of Orfordness beach, coming no nearer to the Ridge than 9 or 8 fathoms (see page 40), which latter mark will take them into Hollesley Bay. But if directly bound for the Downs, bring the high light to bear west, distant 3 miles, and a S. by W.  $\frac{1}{2}$  W. course, for 25 miles, will carry you abreast of the

N.E. point of the Kentish Knock; then steer S.W., 21 or 22 miles, and you will be at the entrance of the Gull Stream.

*From Hollesley Bay to the Downs.*—Vessels sailing from Hollesley Bay for the Downs, with an easterly wind, commonly turn down towards Orfordness with the ebb-tide; and having passed the eastern buoy of the Whiting, turn south-easterly. Bring the high light N. by W., which mark will lead clear to the northward of the Shipwash; and when they have passed the light-vessel off the North Ship Head, about  $1\frac{1}{2}$  mile, they will fall into the track just mentioned, and may steer S. by W.  $\frac{1}{2}$  W., 25 miles, which will lead to the eastward of the Kentish Knock, &c.

In sailing near the Shipwash, be careful to make proper allowance for the tide; and with contrary winds you may stand towards the Shipwash into 12 or 14 fathoms, and off into 17 or 18 fathoms; towards the Long Sand Head into 9 or 10 fathoms, and off into 20 fathoms; towards the Knock into 12 or 13 fathoms, and off into 16 or 18 fathoms; and when you are in a line between the Kentish Knock light-vessel and the Galloper light-vessel, which bear E.  $\frac{1}{2}$  N. and W.  $\frac{1}{2}$  S. from each other, steer directly S.W. for the Gull Stream: the leading-mark through which is, the South Foreland upper light on with the middle of Old Stairs Bay.

**TIDES.**—It is high water at the Long Sand Head, at the full and change of the moon, at  $\frac{1}{2}$  an hour after 11; springs rising 15 feet, neaps about 10. At the North Foreland at 11h. 15m.; springs rising 10 feet, and neaps 7. The flood sets over the Shipwash W.S.W., and the ebb E.N.E., so that vessels passing from the Gunfleet to the Long Sand Head, must have it nearly on their beam; during the two first hours of the flood it sets W. by S. between the Long Sand Head and the Kentish Knock, and also between the Long Sand and the Sunk, with great velocity; while the ebb runs equally rapid in the contrary direction.

## FROM THE NORE THROUGH THE FIVE-FATHOMS CHANNEL, AND OVER THE FLATS TO THE NORTH FORELAND.

### *Description of the Sands, Buoys, Beacons, &c.*

THIS track is buoyed and bounded by the following sands:—The *Cant, Spile, Middle, Gilman, Spaniard, Spell, Woolpack, Last, Horse, Reculver, Gore, Margate Sands, and Cliff's End Bank.*

**THE CANT** is that extensive *flat* which stretches from Sheerness to the eastward, and surrounds the northern coast of the Island of Sheppey; its edge is steep-to, runs in an E.S.E. direction, and deepens suddenly from  $2\frac{1}{2}$  to 9 and 10 fathoms water. At about the distance of 3 miles from the land there is a white buoy placed on its northern edge, in 4 fathoms water, the marks for which have been described, page 21. This must be left on the port or larboard side

**THE SPILE** is a narrow *shoal*, running in an E. by S. direction, and joins the Red Sand; its breadth is somewhat less than  $\frac{1}{4}$  of a mile, with only 1 and 2 feet over it. There is a black buoy on its western extremity, lying in 10 feet water, with a clump of trees at the foot of a slope, on the distant land, on with the extreme east end of the high land of Sheppey, bearing S.S.W.  $\frac{1}{2}$  W.; the Dock-yard shears at Sheerness, on with the tower of Sheerness New Church, W. by N.  $\frac{1}{2}$  N.; Nore light-vessel N.W., distant  $3\frac{3}{4}$  miles; Cant buoy, north, a little easterly; and the Middle Ground buoy S.E.  $\frac{1}{2}$  S. This buoy has been removed about a mile to the westward of its former situation, and is to be left on the port or larboard side.

**THE MIDDLE GROUND** is another *shoal*, about  $\frac{1}{2}$  a mile distant from the Spile, and running about 3 miles in a parallel direction to it: its broadest part, which is toward the middle, is nearly  $\frac{3}{4}$  of a mile across, and nearly dries; but its western and eastern ends are much narrower, and have 8 or 9 feet over them. On its western end is a buoy, painted black-and-white, in squares, in 10 feet water, with Shottenden windmill, in line with the West Muscle-house, S.S.W.  $\frac{1}{2}$  W.; Reculver's

towers, their length on the west end of Cleave Wood, S.E.  $\frac{1}{4}$  S.; Spaniard west buoy S.E.  $\frac{1}{2}$  S.; and the Middle Ground spit beacon E. by S.  $\frac{3}{4}$  S. This buoy lies S.E.  $\frac{1}{2}$  S.,  $1\frac{1}{4}$  mile from the buoy of the Spile. This sand and the Gilman form the northern boundary of the Five-Fathoms Channel.

**The GILMAN** is a small *narrow sand*, about 2 miles long, with from 6 to 9 and 12 feet water on it, being divided from the Middle Ground by a passage, of 3 fathoms water, about  $\frac{3}{4}$  of a mile wide.

**Trinity House Notice, October 15th, 1844.**—A standing beacon has been placed on the spit of the Middle Ground, in the Five-Fathoms Channel, upon the edge of the dry sand, at low water, spring-tides, with the shears at the Dock-yard at Sheerness, twice their apparent length south of the chapel therein, and having the Middle Ground buoy between them, bearing W. by N.  $\frac{3}{4}$  N.; Herne mill on the high back land, open west of the Coast-Guard Station at Herne, and having the Middle Spaniard buoy nearly in line with them, bearing S. by E.  $\frac{3}{4}$  E.; West Spaniard buoy, west; and East Spaniard buoy E. by S.  $\frac{1}{4}$  S. This beacon is to be left on the port or larboard side.

A new buoy, on the eastern end of the Gilman, striped horizontally, and marked "East Gilman," has been placed in 12 feet water, with Whitstable mill, in line with the East Spaniard buoy, S.W.  $\frac{3}{4}$  S.; Sarr mill,  $\frac{2}{3}$  of the way to George Farm from the Reculvers, S. by E.  $\frac{1}{4}$  E.; and the two mills on Margate cliff, open to the right of the new church, S.E.  $\frac{1}{4}$  S.

**The SPANIARD** is about  $3\frac{3}{4}$  miles long, and has a buoy at each end, and one recently placed between them, called the Spaniard Middle buoy; its breadth is variable, from  $\frac{1}{4}$  to  $\frac{1}{2}$  a mile, and its general tendency is E. by S. and W. by N.; the middle or broadest part has some *patches* upon it, which dry at low water: its eastern part has 8 to 9 feet over it, and its western end 9 and 10 feet. This sand forms the southern boundary of the Five-Fathoms Channel.

The **WEST BUOY** of the SPANIARD is white, with a staff and black ball, and lies with Whitstable Church tower, in line with the centre of Whitstable tavern, S.  $\frac{1}{2}$  E.; Minster west windmill, in line with the south side of Reculvers' towers, S.E.  $\frac{1}{4}$  S.; Middle Ground spit beacon E.  $\frac{1}{2}$  N.; and the Spaniard east buoy E. by S. This buoy is a mile S.E.  $\frac{1}{2}$  S. from the Middle Ground buoy, lies in 10 feet water, and must be left on the starboard side in going down the Five-Fathoms Channel.

The **MIDDLE BUOY** of the SPANIARD is placed on the south side of the channel, in 13 feet water, and lies with a black-roofed barn, on the back land, in line with Whitstable tavern, S.  $\frac{3}{4}$  W.; Herne black windmill, in line with the west end of Herne Preventive Station House, S. by E.  $\frac{3}{4}$  E.; Spaniard west buoy W.N.W.; Middle Ground spit beacon N. by W.  $\frac{3}{4}$  W.; and the Spaniard east buoy E.  $\frac{1}{4}$  S. This buoy, in sailing down, is to be left on the starboard side.

The **EAST BUOY** of the SPANIARD is black, with a staff, on which is an inverted cone. It lies with the west end of Cleave Wood, in line with the west end of Lower Hale Grove, S.E. by S.; the black mill above Herne, its width open westward of a white mill on the beach, S.  $\frac{1}{4}$  E.; Puff Sand west buoy E.S.E.; and the Last west buoy S.S.E.  $\frac{1}{2}$  E. This buoy lies in 2 fathoms, and must be left on the starboard side.

The West Buoy of the Spaniard, the Middle Ground west buoy, and the Spile buoy, lie nearly in a line with the Nore light-vessel, bearing N.W., northerly, and S.E., southerly.

**The SPELL** is a *small narrow sand*, lying to the northward of the Last, and now joins the Woolpack. Its western end, where formerly a buoy was placed, lies with Ash Church, just touching a barn westward of two houses to the west of the Reculvers, bearing S.  $\frac{1}{2}$  E., and Mount Pleasant, on with the west side of Upper Hale Grove, S.S.E.  $\frac{1}{2}$  E.

**The WOOLPACK** stretches along from the Spell, in an E.  $\frac{1}{2}$  S. direction, towards the Margate Sand. Some parts of this sand become dry at low water, and there are only from 3 to 6 feet over it at any part. It is divided from Margate Sands by a *swashway*, of 12 feet water.

The **LAST** is a *long narrow sand*, lying nearly 2 miles to the northward of the Reculvers, in the direction of E. by S. and W. by N., and is about 2 miles long, from 9 feet on its eastern part, to 12 feet on its western end, with 2, 5, and 6 feet water over it. This, formerly, was the southern boundary of the Narrows Channel, while the Spell and Woolpack were its northern limits; but in consequence of a shifting of these sands, the buoys of the Spell and Woolpack have been taken away, and the channel of the Narrows forsaken. Instead of this passage, vessels now proceed to the southward of the Last, and through the Horse Channel; this, therefore, has been newly buoyed. Three black buoys now lie on the southern part or edge of the Last, and a red buoy on the tail of the Horse Sand, nearly opposite to the middle buoy of the Last. The passage is between the three Last buoys on the northward, and the Horse buoy on the southward.

The **WEST BUOY** of the **LAST** lies on the extremity of the sand, in 11 or 12 feet water, and is a black beacon-buoy, with a staff and ball. The marks for it are, the Reculvers' steeples S. by E.; Stud Hill on with the southernmost houses on Hampton Hill, W.S.W.  $\frac{1}{4}$  W.; the low west end of Cleave Wood upon the east end of Upper Hale Grove; the middle buoy of the Last E.S.E.  $\frac{1}{4}$  E.; and the Horse buoy S.E.

The **MIDDLE BUOY** of the **LAST** (black) lies in 10 feet water, the marks being the Reculvers' steeples S. by W.; the Horse buoy S.W.  $\frac{1}{4}$  W.; the East Last buoy E.S.E.; the West Last buoy W.N.W.  $\frac{1}{4}$  W.; and Waldershare House appearing  $\frac{1}{2}$  of the distance from the Reculver barn towards George's farm-house.

The **EAST BUOY** of the **LAST** (black) lies also in 10 feet, on the southernmost part of the east end of the sand, with the west end of the Chislet Miller's House upon the east end of the first house next westward of the Reculvers' steeples, bearing S.W. by S.; the Horse buoy W.  $\frac{1}{4}$  N.; and the Last middle buoy W.N.W.

The **HORSE** is a *bank* of small dimensions, at the end of which lies a red buoy, in 10 feet water, the marks for which are, Waldershare Monument, midway between George's farm-house and the first house to the eastward of it; Reculvers' steeples S.  $\frac{1}{4}$  W.; North Down tower on the end of the west cliff in Marsh Bay, S.E. by E.; and the west buoy of the Last N.W.

The Reculver Sand lies within  $\frac{1}{2}$  a mile of the shore, and dries at low water. A *sandy flat* of shallow water runs from Whitstable Street, along the Kentish shore, which rounds Herne Bay, and a little to the eastward of the Reculver Sand, stretches out  $1\frac{1}{4}$  mile from the land; this is directly opposite the eastern buoy of the Last, narrowing the deep-water channel, and rendering it necessary to keep within  $\frac{1}{4}$  of a mile of the buoy.

**HERNE BAY.**—This place, which is situated S.E. by S., about 7 miles from the white beacon-buoy on the west end of the Spaniard, and W.S.W.,  $2\frac{1}{2}$  miles from the west buoy of the Last, is rapidly rising into consequence. A handsome pier has been erected, extending outwards, in a N.  $\frac{1}{4}$  W. direction, full 3,000 feet, the head of which is nearly in the form of a T; and 220 feet long from east to west; and on each side, a flight of steps, for the convenience of passengers landing here. From hence to Canterbury, the distance by land is only  $7\frac{3}{4}$  miles, and to Margate  $11\frac{1}{4}$  miles.

The **GORE PATCH** is a *shallow spot*, on which is a buoy, striped black-and-white; it lies in 6 feet water, with the west end of Cleave Wood, in line with the Preventive Station on Birchington cliff, S. by E.  $\frac{3}{4}$  E.; east end of the Miller's House at Chislet, in line with the west end of Vantipier Farm buildings, S.W.; and the East Last buoy N.W.  $\frac{1}{4}$  W. This buoy has been lately removed about 40 fathoms, in a south-western direction from its former situation.

**MARGATE SANDS** may be said to extend from the Last, 8 miles, in an E. by S. direction, to the east buoy, which is painted black, with a staff and inverted cone. There is, indeed, a passage of 8 or 9 feet between the Last and Woolpack, and the western part of Margate Sand, into the Narrows, which formerly was the common passage for shipping; but it is now grown up, and disused. The Margate Sand is



about 2 miles broad; its middle part dries, and is  $8\frac{1}{2}$  feet above the low water mark, spring-tides; its northern edge dries for a considerable way to the eastward, and is steep-to: but from its western end *shallow spits* run off, with from  $\frac{1}{2}$  to  $1\frac{1}{2}$  fathom over them; and from the eastern spit to the east buoy is a *flat*, of 2,  $2\frac{1}{2}$ , 3, and 4 fathoms, the latter depth being near its extremity. This flat extends westerly on the northern side of the sand to the Wedge, and on the southern side joins the Gore and Hook spit.

The *Hook spit* is a *shallow patch* of the main sand that partly dries at low water, upon which is a standing beacon, placed upon the dry sand, near the position that was formerly pointed out by a chequered red-and-white buoy, and lies with Hillborough Church, its width open west of George's Farm, W. by S.  $\frac{1}{4}$  S.; South Margate buoy E. by S.  $\frac{1}{4}$  S.; Gore Patch buoy N.W.  $\frac{1}{2}$  W.; Horse buoy N.W. by W.  $\frac{1}{4}$  W.; Reculver buoy W.S.W.; and Mount Pleasant, just open east of the eastern Coast-Guard station at St. Nicholas, S. by E.  $\frac{1}{2}$  E.

The **CLIFF'S END BANK** consists of *three small spots*, lying mid-channel between the Margate Sand and the shore, having upon the shoalest or easternmost spot, 16 and 17 feet water; the western shoal lies with Birchington Church bearing S.  $\frac{1}{2}$  E.

A white buoy, with a staff and ball, is laid about  $\frac{1}{3}$  of a mile to the northward of the Cliff's End Bank, and marks the southern edge of the Margate Sands at this spot, with the following marks:—North Down tower, in line with the cupola of Margate Old Church, S.E.  $\frac{1}{2}$  E.; St. Nicholas Church tower, in line with St. Nicholas Preventive station, S.W., southerly; and Birchington Church S.  $\frac{1}{2}$  E.

The **LONG NOSE** is a *reef of rocks*, extending about  $\frac{1}{4}$  mile N.N.E. from Foreness. A red buoy, having the word "Longnose" marked on its head, is placed on the extremity of this reef or ledge, in 24 feet water, at low spring-ebbs. Its marks are, the westernmost house on North Down, on the open gap or waggon-way in the cliffs, S.W.  $\frac{1}{4}$  W.; Birchington seed-mill, on with Ledge Point, W.  $\frac{1}{4}$  N.; the North Foreland lighthouse S.  $\frac{1}{4}$  W.; and North Down Tower S.W.  $\frac{1}{4}$  S. The shore, from Whitetable to abreast of the Cliff's End Bank, is chiefly a low sandy beach, with some few rocky points; but from Cliff's End to the North Foreland, are high and rocky cliffs.

## DIRECTIONS FOR SAILING FROM THE NORE TO THE NORTH FORELAND.

IN running down from the Nore light-vessel for the Five-Fathoms Channel, steer S.E.  $\frac{1}{4}$  S., 5 miles, which will carry you over the Cant, in 10 to 12 feet at low water, and pass the black buoy of the Spile and chequered buoy of the Middle Ground, leaving them on the port or larboard side, to the entrance of the Five-Fathoms Channel; this is called the Overland route. When the Middle Ground buoy bears E. by N., and the Spaniard west buoy S.E. by E., or Minster Church, in the Isle of Sheppey, W.  $\frac{1}{4}$  N., steer E.S.E.  $\frac{1}{4}$  E. so far as the beacon of the Middle Ground, then E.  $\frac{1}{4}$  S. to the beacon-buoy of the Spaniard, the whole distance being about 5 miles; this route will take you through the channel in 13 to 15 feet, remembering to leave the beacon of the Middle Ground and Gilman buoy on the port or larboard, and the three buoys of the Spaniard on the starboard side. Having passed the east buoy of the Spaniard, a S.S.E.  $\frac{1}{4}$  E. course,  $4\frac{1}{2}$  miles, will take you to the entrance of the Horse Channel, in 12 to 15 feet at low ebbs; but particular allowance must be made for the tide, which sets nearly across the beam. Vessels drawing not more than 8 feet, after having passed the Spaniard west buoy, may proceed direct to the Horse Channel, over the Flats, by steering S.E.  $\frac{1}{4}$  E.,  $8\frac{1}{2}$  miles. Take care to make proper allowance for the tide; and, unless well acquainted, proceed only with the flood.

In working through the Five-Fathoms Channel, put about on the first shoal east on either side. The flood sets strong over the Spaniard towards the East Swale, and the ebb the contrary. This channel, where narrowest, is not more than  $\frac{1}{2}$  a mile wide; in the western part are 12 and 15 feet, and opposite the buoy of the Gilman, 18 feet. The water is somewhat deeper on the Gilman side, that sand being steep-to, while the Spaniard shallows gradually.

**HORSE CHANNEL.**—In running for the west buoy of the Last, which, as before noticed, is black, with staff and ball, you may bring the west end of Cleave Wood on with the west end of Lower Hale Grove; and in working over, stand to the eastward, till Sarr Mill nearly touches the Reculvers, and to the westward, till St. Nicholas Church comes near the east side of the Reculvers. In this course you will have from 9 to 15 feet at low ebbs. But, if the water be so far fallen that you cannot go over the flats, you may anchor abreast of the east buoy of the Spaniard, in 3 or  $3\frac{1}{2}$  fathoms, the buoy bearing S.W., a large mile distant; or by running S.E., about  $5\frac{1}{2}$  miles, from the Five-Fathoms Channel, you will reach the Horse-shoe Hole. Here, if requisite, you may bring-up, the marks for anchoring being St. Peter's Church in the middle of Marsh Bay, and the Reculvers S. by W.  $\frac{1}{2}$  W.; or with the Pan Sand beacon open to the westward of the buoy of the South Knoll, in from 15 to 20 feet water.

Having arrived at the western buoy of the Last, steer E.S.E., passing well to the northward of the buoy of the Horse, as there are only 9 feet at low water north-eastward of the buoy; then bringing North Down tower, on the tip of the west cliff of Marsh Bay, bearing S.E. by E., and keeping that mark on, you will pass across the Ridge, about  $\frac{2}{3}$  of the distance between the Gore Patch buoy, and 9 feet at low water, spring-tides, on the main; continue in this direction, which will take you through the Gore Channel, until Birchington mill is in a line with Cliff's End, bearing S. by E.; and then alter your course to E. by S., the Reculvers bearing W. by N., which will lead you to the southward of the Cliff's End Bank, and through the south channel, until you are off the Longnose, with Margate New Church W. by S.

To keep in the best water when sailing through the Horse Channel, steer E.S.E. from the west beacon-buoy of the Last,  $1\frac{1}{2}$  mile, to abreast of the East Last buoy, then S.E.  $\frac{1}{2}$  E.,  $1\frac{1}{2}$  mile to the standing-beacon on the Hook; from thence an E.S. E.  $\frac{1}{2}$  E. course will take you to the red buoy of the Longnose: in the latter course you will cross the Cliff's End Banks, in 16 feet at low water, spring-tides.

**THE GORE.**—The anchorages most commonly used, especially by large ships, are the Gore, Westgate Bay, and Margate Road. For the Gore the marks are, Monckton beacon, anywhere between the west side of Lower Hale Grove and the middle of Upper Hale Grove; and St. Peter's Church, midway between the house and barn in Westgate Bay, about S.E. In this part are  $4\frac{1}{2}$  and 5 fathoms water. In the Gore the tide runs till 12 o'clock, but flows upon the shore until  $11\frac{1}{2}$ , full and change.

**WESTGATE BAY.**—The marks for anchoring off Westgate Bay are, Margate Old Church, on with Nallan Point, bearing S.E.  $\frac{1}{4}$  S.; and Minster west mill upon the barn in Westgate Bay, bearing S. by W.  $\frac{1}{2}$  W., in 5 or 6 fathoms, good ground.

**MARGATE ROAD.**—In working down through the south channel, you may stand toward Margate Sand into 5 and 4 fathoms, and into the same depth toward the shore, until you are below Margate. The marks for anchoring in Margate Road, in 6 or  $6\frac{1}{2}$  fathoms, are Minster east mill, on with, or open to the westward of, Nallan mill; and Foreness S.S.E.  $\frac{1}{4}$  E.; or in 6 and 7 fathoms, with Margate Old Church, on with the pier-head, bearing south; and Bishopston farm-house, on with the Reculvers, bearing W.  $\frac{1}{4}$  N.

A LIGHTHOUSE\* has been built on MARGATE PIER-HEAD, in which is ex-

\* This is a handsome stone building, and was completed in 1829, under the superintendence of Mr. W. Edmunds. The shaft forms an elegant Doric column, placed on an octagonal base, and surmounted by a lantern of cast-iron, within which is the brilliant red light alluded to.

hibited, throughout the night, a red fixed light, elevated 85 feet above the level of the sea at high water, and visible 13 miles off, in clear weather; this light is on the port or larboard or east side of the harbour. In the day-time a blue flag is hoisted on the pier, when there are 10 or more feet in the harbour. A bright light is also placed at the extremity of Jarvis's jetty, to warn vessels of approaching too near.

The mark to go clear of Longnose, off Foreness, is to keep Birchington seed-mill, just open of Ledge Point, bearing west. Run out with this mark on, passing to the northward of the red buoy, till the North Foreland lighthouse bears S.S.W.  $\frac{1}{2}$  W., and you will be  $\frac{1}{2}$  a mile east of Longnose; come no nearer than 7 or 6 fathoms. Longnose runs out full  $\frac{1}{2}$  a mile from Foreness, and has 5 fathoms close to it.

**THE NORTH FORELAND LIGHTHOUSE** is an octagonal white tower, 50 feet high from the base to the lantern, which is elevated 340 feet above the level of high water; it has a brilliant fixed light, from lamps with patent reflectors, and is visible 6 or 7 leagues off. The lighthouse was originally built for a coal fire, in 1683; but was greatly improved by the substitution of a lantern in 1790.

## THE RIVER SWALE.

**THE EAST SWALE** is at the eastern end of the channel which separates the Isle of Sheppey from the main coast of Kent. It is an excellent harbour, and a safe retreat for ships having lost their anchors, &c. This channel is about 5 miles in length from its entrance, between the Columbine and Whitstable Flats, to the Horse Sand, nearly  $\frac{1}{2}$  of a mile broad, and is regularly buoyed. The shore is, in general, soft mud; ships may safely run aground on any part within Shellness, but the best place is at Faversham Creek; and if a ship required to be laid on shore, there is a place sufficiently hard at Harty Ferry. Vessels drawing less than 9 feet may, with spring-tides, get up to Faversham.

From Shellness, to about a mile above Harty Ferry, the ground is good for anchoring, and there are  $3\frac{1}{2}$  and 4 fathoms at low water, spring-tides; at those tides the water rises from 17 to 21 feet, and at neap-tides from 12 to 14 feet. It flows, on full and change, at about  $\frac{1}{2}$  past 12 o'clock, if the wind be not easterly; but with an east wind, at 10 o'clock. Boats or small vessels of 5 feet draught of water, may sail up Crog Dick to within a mile of Minster; with spring-tides it joins Crog Dick in Clay Reach.

Milton Creek is on the south side of the Swale, about 5 miles above Harty Ferry. Vessels drawing less than 10 feet may go up to Milton with spring-tides. Long Spit Creek lies on the western side of the West Swale; vessels drawing less than 3 feet, can pass through it into Stangate Creek with spring-tides.

**THE COLUMBINE** is a *hard sand*,  $\frac{1}{2}$  a mile broad, and about  $2\frac{1}{2}$  miles long, extending W.S.W.  $\frac{3}{4}$  W. and E.N.E.  $\frac{3}{4}$  E., lying on the starboard side as you enter the East Swale. On the port or larboard side of the entrance is Whitstable Street, a *ridge of pebbles*, having the appearance of a street, running out a considerable distance from the point at Whitstable, and generally dries at low water. The mark for this ridge is, the easternmost copperas-house open a sail's breadth to the westward of Whitstable Church. From this ridge Whitstable Flats extend in the direction of Shellness Point, 3 miles, contracting the entrance opposite that point to less than the width of  $\frac{1}{4}$  of a mile: it thence continues so far as Faversham Creek, forming the southern side of the channel. To the westward of Whitstable Street is the town and new harbour of Whitstable, from which a pier runs out, communicating with a railroad, lately constructed, running to Canterbury, the distance being  $6\frac{1}{2}$  miles. By this railroad goods are readily conveyed from small vessels, which land them at the pier. On the *Oyster Grounds*, called the *Whitstable Flats*, in front of the harbour, there is a depth of only 3 feet at low water.

Five buoys have been placed in the East Swale, by order of the Trinity House,

viz.—three (red) on the Columbine, on the north side of the channel; one (black) with staff and ball, between the east end of the Columbine and Whitstable Street; and one (black) near the spit of the Pollard, on the south side.

The OUTER BUOY of the COLUMBINE (red) lies in 9 feet, with the Reculvers S.E.  $\frac{1}{2}$  E.; a watch-house at Whitstable, on with the tower of the church, S. by W.; the east or black beacon-buoy of the Spaniard N.E. by E.; and the Columbine spit buoy W.S.W.  $\frac{1}{2}$  S. This buoy is to be left on the starboard side.

WHITSTABLE STREET BUOY (black), with staff and ball, lies in 12 feet, low water, spring-ebbs, at about 30 fathoms N.W. from the street end, with a tuft of trees on Harty Backland, a boat's length open to the left of a white house on the slope of a hill below it, bearing W.  $\frac{1}{2}$  N.; Whitstable Church, midway between a large white house on the cliff and a small white watch-house to the eastward of it, bearing S. by W.; the Columbine east buoy N.  $\frac{3}{4}$  E., at about  $\frac{3}{4}$  of a mile distant; the spit buoy of the Columbine N.W. by W., about  $\frac{3}{4}$  of a mile distant; and the Ham Houses W.  $\frac{3}{4}$  N. This buoy is to be left on the port or larboard side.

The SECOND, or SPIT BUOY of the Columbine (red), to be left on the starboard side, lies in 8 feet, low water, spring-ebbs, with a clump of trees on Nagdon Hill, on with the southern extremity of Shellness, W.S.W.  $\frac{1}{2}$  W.; Whitstable Church on with the westernmost Copperas-house, S.  $\frac{1}{2}$  E.; and the Columbine east buoy N.E. by E.  $\frac{1}{2}$  E.

The POLLARD SPIT BUOY (black), to be left on the port or larboard side, lies in 8 feet, low water, spring-ebbs, with Harty Church on Bell's House (the southernmost dwelling-house at Shellness), bearing west; and a clump of trees on the westernmost part of the high land of Sheppey, on with the white end of the easternmost Muscle-house, N.W.  $\frac{1}{2}$  W.

The HAM GAT BUOY on the west end of the Columbine (red), on the starboard side, lies in 6 feet, low water, spring-ebbs, with the west part of Judd's Hill, in a line with the beacon on Shellness Point, W.S.W.  $\frac{1}{2}$  W.; and a clump of trees on the westernmost part of the high land of Sheppey, on with the white end of the easternmost Muscle-house, bearing N.W.  $\frac{1}{2}$  W.

After passing Whitstable Street buoy, leaving it on the left, steer up mid-channel, W.S.W.  $\frac{1}{2}$  W., with Judd's Hill open a ship's length to the southward of Ore mill, which appears to stand near to the water's edge; and when the Columbine spit buoy is passed, bring Judd's Hill and Ore mill in one, bearing W.S.W.  $\frac{1}{4}$  W., and keep them so, until you are 2 miles above Shellness Point. There is good anchorage all the way up, in from 3 to 4 fathoms at low water, clay bottom, with mud on the surface. The channel is of various breadths, from  $\frac{1}{2}$  to  $\frac{3}{4}$  of a mile, above the Horse, where it is narrowest.

To sail from abreast of the eastern buoy of the Spaniard to the entrance of the East Swale, you should steer S.W.  $\frac{1}{2}$  W., 4 miles. To sail from the Horse Channel for the River Swale, steer W.N.W.; you will then see a remarkable clump of trees, about 10 miles up the country, appearing like the hummock of a saddle: bring these in one with Harty Church, and it will carry you into the deepest water between the Columbine and Whitstable Street; keep this mark on, until you get Judd's Hill on with Ore windmill, bearing W.S.W.  $\frac{1}{4}$  W., then you may anchor.

To anchor outside of Shellness, at the mouth of the Swale, bring the Muscle-houses on with Leysden Church, in  $3\frac{1}{2}$  fathoms at low water; or Ore mill on with Judd's Hill, in  $3\frac{1}{2}$  and 4 fathoms: or you may proceed all the way up to the Horse Sand, which is about  $1\frac{1}{4}$  mile in length, and lies  $\frac{1}{2}$  over the channel from the Isle of Sheppey. The Horse is sometimes dry on neap-tides at high water, and lies opposite the entrance to Faversham Creek: near the east end of the sand, close to the mud shore bank, and on the spit at the west side of Faversham Creek, is a beacon.

To sail into the Swale from Margate Road or Westgate Bay, with a ship drawing more than 14 feet water, through the south channel, with the wind southerly, or so that it may lead all the way, get under weigh at half or the last quarter of flood, and steer towards the west buoy of the Last, then edge off a little to the north-

ward, to avoid the Cross Banks; thence run W.N.W. from the buoy of the Last, which will carry you safe between Whitstable Street and the eastern end of the Columbine. In this course you must make allowance for the tide.

To sail out of the Swale, you should have a leading wind; and ships drawing more than 15 feet, must wait till the water reaches the foot of a beacon at the entrance of Faversham Creek, or about the first third of flood, as there are at that time 3 fathoms in the shoalest part of the channel, which is at the east end, between Whitstable Street and the eastern extremity of the Columbine.

In thick weather, when the marks are not visible, if you can see the point of Shellness, steer in for that, bringing it to bear W. by S., which will carry you safely in; or, if the Muscle-houses can be perceived, steer for them, until they bear W. by N., and Shellness W. by S. Then proceed as before directed; but the buoys will be your best guide.

Be careful always to keep the marks in one, as the flood-tide sets from the west buoy of the Spaniard, through the Ham Gat, over the Pollard, and the ebb the contrary. The Ham Gat is a shallow passage between the west end of the Columbine and the Muscle Bank, with 1 fathom water.

**TIDES.**—In the East Swale it is high water, on full and change days at  $\frac{1}{2}$  after 12 o'clock, but easterly winds will make it much earlier; spring-tides rise from 17 to 21 feet, neaps from 7 to 14 feet; at the Reculvers at  $\frac{1}{2}$  past 11, but the flood will run until 12; ordinary spring-tides will rise 15 feet, neaps 7 and 8 only; at Margate it is high water at  $\frac{1}{4}$  after 11, and the flood runs near the shore but slowly, but in the road and off the Hook, its velocity is about  $2\frac{1}{2}$  miles spring, and neaps 1 mile. There is commonly a great indraught into the River Swale, which much influences the stream over the Flats, the flood there setting W. by S., and the ebb the contrary.

## FROM THE NORE THROUGH THE OAZE, NOB, QUEEN'S AND PRINCE'S CHANNELS, TO THE NORTH FORELAND.

### *Description of the Sands, Buoys, &c.*

THIS track is bounded by the following sands:—the *Oaze*, *Spile*, *Red Sand*, *Shivering*, *Nob*, *Girdler*, *Pan Sand*, *Pan Sand Patch*, *Pan Speck*, and the *Tongue*, the *South Knoll*, *Wedge*, and *Margate Sands*; there are also the *Spell* and the *Woolpack Sands*, which lie on the southern side of the Queen's Channel; but they are far out of the track, unless you should pass to the southward of the black buoy of the South Knoll.

**THE OAZE SAND** lies nearly in an east-and-west direction, being about 4 miles long, and  $\frac{1}{2}$  a mile broad; its middle part has not more than 6 feet over it. There is a buoy upon each end, and one about midway between, on the south edge of the sand.

**THE OAZE WEST BUOY** is red, with a staff and ball, and lies in 3 fathoms; the marks are, the Nore light-vessel W.N.W.  $\frac{1}{2}$  W., distant about  $4\frac{1}{2}$  miles; the Blacktail beacon N.N.E.  $\frac{3}{4}$  E.; and the buoy of the Spile S.W. by W.

**THE OAZE MIDDLE BUOY** (chequered black-and-white, and marked "Middle Oaze"), lies in  $3\frac{1}{2}$  fathoms, with the west end of Cleave Wood, in line with the middle of Lower Hale Grove, S.E. by S.; a conspicuous clump of trees on the high land, just open to the northward of the tower of the chapel of Sheerness Dock-yard, west, northerly; Blacktail beacon N.N.W.  $\frac{1}{4}$  N., Mouse light-vessel N.E.  $\frac{1}{2}$  N.; and the West Oaze buoy, west, northerly.

**THE OAZE EAST BUOY** is white, and lies in 4 fathoms, with the buoy on the Mouse bearing N.N.W.,  $1\frac{1}{2}$  mile; the west buoy of the Oaze, west,  $4\frac{1}{2}$  miles; *Minster Church*, in Sheppey, W.  $\frac{3}{4}$  S.; the Blacktail beacon N.W.  $\frac{1}{2}$  W.,  $3\frac{1}{2}$  miles; the *Nob buoy* E.S.E.  $\frac{1}{4}$  E.,  $2\frac{1}{2}$  miles; and the *Shivering* east buoy S.E.,  $2\frac{1}{2}$  miles.

The Oaze Sand continues in an easterly direction to the New Nob, on which a striped buoy is placed.

**SPILE, RED, and SHIVERING SANDS.**—The **SPILE** is a *narrow sand*, (having lately increased to the westward), with a black buoy on the western end, which has been already described in page 46. This sand stretches E. by S. for about 2 miles, where it joins the Red Sand, which continues in nearly the same direction for  $2\frac{1}{2}$  miles farther. About where the Spile may be said to join the Red Sand, a red-and-white buoy has been laid down, marked “East Spile,” in  $3\frac{1}{2}$  fathoms, with a conspicuous clump of trees on the high land, in line with Mouse Hole Church, S.W.  $\frac{1}{4}$  W.; South Church spire, its length on the east end of Shoebury Preventive Station, N.W.  $\frac{1}{4}$  N.; West Oaze buoy N.N.W.; Cant buoy N.W. by W.  $\frac{3}{4}$  W.; and Middle Oaze buoy N.E.  $\frac{1}{4}$  E. Some parts of this sand become dry at low water. The Shivering Sand was formerly separated from the Red Sand by a small swashway, of 12 feet water; but now these three sands may now be considered as one, the length of which, from the west buoy of the Spile to the east buoy of the Shivering, is  $7\frac{1}{4}$  miles.

A Trinity House Notice, dated 28th October, 1846, states, that the Red Sand Swashway having grown up, so as to render it dangerous, notice is given, that the chequered red-and-white buoy on the eastern side, and the red buoy on the western side, have been taken away, and that a buoy, coloured red, and marked “Red Sand,” has been placed in  $3\frac{3}{4}$  fathoms at low water, spring-tides, on the north side of the former entrance to the aforesaid swashway, with Herne low mill S.  $\frac{1}{4}$  E.; Shivering Sand buoy E.  $\frac{1}{4}$  S.; and the East Spile buoy W.  $\frac{1}{4}$  N.

The **EAST BUOY** of the **SHIVERING** is striped black-and-white, with white head, and staff and ball; and must be left on the starboard. By a notice given by the Trinity House on the 17th of March, 1847, this buoy was moved about 2 cables’ length to the N.W. of its former situation, and now lies in  $3\frac{1}{2}$  fathoms at low water, spring-tides, with Ash Church, just open east of George’s farm, S.  $\frac{1}{4}$  E.; Girdler buoy S. by E.  $\frac{3}{4}$  E.; Nob buoy N.E. by E.; Mouse light-vessel N.W.  $\frac{1}{2}$  N.; and East Oaze buoy N.W.

The **NOB** is a *sand*, nearly 2 miles long and  $\frac{1}{2}$  a mile broad; on its middle part are 17 feet at low water, but toward its extremities there are  $4\frac{1}{2}$  fathoms. Near the western edge of the shoalest part of this sand is a red buoy, which now lies in  $3\frac{1}{4}$  fathoms at low water, spring-tides, with North Down tower, in line with Margate windmill, S.S.E.  $\frac{1}{2}$  E.; Monckton and Pan Sand beacons in one, S.  $\frac{3}{4}$  E.; Girdler buoy S.S.W.  $\frac{3}{4}$  W.; Shivering Sand buoy S.W. by W.; and the East Oaze buoy W. by N.  $\frac{1}{2}$  N. The Nob buoy should be left on the port or larboard side.

The **NEW or NORTH NOB**.—A buoy, striped red-and-white, has been placed on the western part of a *knoll*, east of the Oaze Sand called, the *North Nob*, in  $3\frac{1}{2}$  fathoms, with North Down tower, midway between Margate New Church and Margate windmill, bearing S.S.E.  $\frac{3}{4}$  E.; Ash Church, midway between George’s farm-house and Reculvers’ towers, S.  $\frac{1}{4}$  E.; Mouse light-vessel N.W. by W.  $\frac{1}{2}$  W.; East Oaze buoy, west; Shivering Sand buoy, south; and the Nob buoy S.E.  $\frac{1}{2}$  E. —Trinity House Notice, November 1st, 1844.

The **GIRDLER** is an *extensive flat*, on the north-western part of which a *narrow patch*, about 2 miles long, becomes dry at low water.

On the **WEST END** of the **GIRDLER** is a black buoy, to be left on the port or larboard side, lying with the east buoy of the Shivering Sand bearing N. by W.  $\frac{3}{4}$  W.; Reading Street mill, open to the left of North Devon tower, the length of that tower, bearing S.E. by S.; Pan Sand west beacon-buoy S. by E.  $\frac{1}{2}$  E., and on with the middle of Lower Hale Grove; Ash Church, open to the right of the three barns which stand next westward of the Reculvers, the width of these barns, bearing S.  $\frac{1}{4}$  E.; and the buoy of the Nob N.N.E.  $\frac{3}{4}$  E. The buoy of the Girdler lies in 17 feet at low water, spring-tides; and to the southward of it is a *small knoll*, having only 17 feet water over it.

From the buoy of the Girdler, the northern edge of the flat runs E. by N., 7 miles,

where an opening, between that and the Long Sand, called Bullock's Channel, leads into the Queen's Channel. This opening is about  $\frac{3}{4}$  of a mile wide, and has from 3 to 5, 6, and 7 fathoms within it. The northern edge of the Long Sand then commences, running E.N.E., 7 or 8 miles, then N.E. by E., 5 miles, when it turns east to the Long Sand Head. Several parts of this Long Sand edge become dry at low water, and is generally steep-to. The Long Sand Head is about a mile broad; about half-way to the westward it increases to 2 miles, and the breadth of the western part of the Long Sand which is near to Bullock's Channel, is 4 miles. The channel between the Girdler and the Long Sand on the one side, and the Knock John and Sunk on the other, is called the Black Deep and Sunk Channel; it contains deep-water, and no known danger; but, for want of leading-marks, it is, like the Barrow Deep, which lies to the northward, not frequented by shipping. The Bullock's Channel lies nearly  $1\frac{1}{2}$  mile to the westward of the channel, formerly known as St. Thomas's Channel, or the Smuggler's Swash.

The southern side of the Girdler Flat extends from the Girdler buoy, S.E. by E.  $\frac{3}{4}$  E., 3 miles; thence E. by S., 6 miles, to the southern entrance of Bullock's Channel; there are some parts which nearly dry upon these flats, particularly the South Girdler and the Shingles, on each of which a conspicuous beacon has been erected, which will be described hereafter. The former lies N.N.E. from the middle of the Pan Sand, and the latter N.N.E. from the middle of the Tongue. The southern edge of the Girdler Flat forms the northern boundary of the Prince's Channel, while the Pan Sand, Speck, and Tongue, are its limits to the southward.

**THE PAN SAND** extends  $2\frac{1}{2}$  miles E. and W., and is nearly a mile at the broadest part, where it dries at spring-tides. On the west end of it are from 3 to 6 feet water, on the middle a foot, and on the east end from 6 to 9 feet. At its eastern end is the PAN PATCH, extending to the eastward from the Pan Sand about a mile, with  $3\frac{1}{2}$  to  $2\frac{1}{2}$  fathoms over it. On the SOUTHERN EDGE is a white buoy, in  $3\frac{1}{2}$  fathoms, lying with Monckton beacon in a line with Upper Hale Grove, bearing south, a little west; a remarkable lofty tree eastward of Minster mill, open to the westward of Birchington Church, S. by E.; Pan Sand beacon N.W. by W.  $\frac{1}{2}$  W.; and the South Knoll buoy W. by S.

The Pan Sand has a buoy and a beacon upon it; the buoy is white, with a staff and ball, and lies at the south-west end, in  $2\frac{1}{4}$  fathoms. It must be left on the port or larboard side. The marks are, Ash Church, apparently midway between Sarr mill and the Reculvers, S.  $\frac{1}{4}$  W.; the Girdler buoy N. by W.  $\frac{1}{2}$  W., distant  $2\frac{1}{4}$  miles; and the buoy of the South Knoll S.E.

A red-and-white chequered buoy has been placed to mark a *knoll*, which has grown up about 3 cables' length to the southward and eastward of the West Pan Sand buoy; the depth of water upon the knoll does not in one spot exceed 9 feet at low water, spring-tides. The said buoy lies in 10 feet, with the following marks and bearings, viz.:—Margate windmills, their apparent width open south of Margate New Church, S.E.  $\frac{1}{2}$  S.; Monckton beacon S. by E.; West Pan Sand buoy N.N.W.; Pan Sand beacon E.  $\frac{1}{2}$  S.; and South Knoll buoy S.E.  $\frac{1}{2}$  S. Masters of vessels, pilots, and others, should be careful not to navigate between the above buoy and the West Pan Sand buoy.—*Trinity House, May 2nd, 1846.*

**PAN SAND BEACON.**—A standing beacon has been fixed where a chequered buoy was formerly placed; its marks are, Ash Church open to the eastward of Sarr mill, bearing S.  $\frac{1}{2}$  W.; Monckton beacon, open to the westward of the west end of Upper Hale Grove; Reculvers S. by W.; Pan Patch buoy S.E. by E.  $\frac{1}{2}$  E.; and the west buoy of the Pan Sand W.N.W.  $\frac{1}{2}$  N.

**PAN SPECK, or the RIDGE,** lying to the north-eastward of the Pan Patch buoy, distant  $\frac{3}{4}$  a mile, and stretching out thence farther to the northward, having little more than a foot over it, is the northern arm of the Pan Sand; close to the northward of it are 4 to 6 fathoms, and between it and the Pan Patch, 4 and 3 fathoms. The marks for its northern point are, the Pan Patch buoy S.W. by S., distant  $\frac{3}{4}$  of a mile; and the east buoy of the Tongue Sand E.S.E., distant  $4\frac{1}{4}$  miles.

**THE TONGUE SAND** lies nearly E.S.E. and W.N.W., and stretches  $3\frac{1}{2}$  miles, from 3 fathoms at each end; the middle part is more than  $\frac{1}{2}$  a mile broad, but gradually becomes narrower to the east buoy; near the west buoy is a part with only 2 feet, but it deepens to the eastward to 3 and 4 fathoms. Between the Pan Speck and the Tongue are from 3 to  $4\frac{1}{2}$  fathoms. There are two buoys upon the Tongue Sand. The **WEST BUOY** of the **TONGUE**, which lies on the south edge of the sand, about  $1\frac{1}{2}$  mile to the eastward of the west end, is white, and lies in 4 fathoms; its marks being, Monckton beacon, on the middle of East or Lower Hale Grove, bearing S. by W.  $\frac{3}{4}$  W.; St. Peter's Church, in a line with Margate New Church, S. by E.  $\frac{1}{2}$  E.; the Wedge buoy S. by W., distant  $1\frac{1}{4}$  mile; and the Pan Patch buoy W.  $\frac{1}{4}$  N.,  $2\frac{1}{4}$  miles.

The **EAST BUOY** of the **TONGUE** is a black nun-buoy, of large dimensions, surmounted by a black ball, and lies in  $3\frac{1}{2}$  fathoms, the west buoy bearing W. by N.  $\frac{1}{4}$  N.,  $2\frac{1}{4}$  miles; the buoy of the Wedge W. by S.  $\frac{1}{2}$  S., nearly  $2\frac{1}{2}$  miles; the north spit buoy of Margate Sand S.W. by S.,  $1\frac{1}{4}$  mile; the east buoy of Margate Sand S.E. by S.  $\frac{1}{4}$  E.,  $3\frac{1}{4}$  miles; and the North Foreland light S. by E.

**THE SOUTH KNOLL** is a *small bank*, with 14 feet over it. A black buoy points out its situation, and lies in  $2\frac{3}{4}$  fathoms water, the marks being, the two windmills eastward of Margate, on with Margate New Church tower, S.E.  $\frac{1}{4}$  S.; Minster west windmill, on with a windmill standing northward of it, S.S.E., southerly; and the Pan Sand beacon N.N.W.  $\frac{1}{4}$  W.

**THE WEDGE** is a *small narrow sand* on the southern side of the Queen's Channel; it lies on the northern edge of the shallow water which encompasses Margate Sands, leaving behind them a channel, of 4 and 5 fathoms. On the **NORTHERN EDGE** of the **WEDGE** lies a red buoy, in 4 fathoms, to be left on the starboard side, the marks for which are, Monckton beacon, on the middle of East or Lower Hale Grove, bearing S. by W.  $\frac{3}{4}$  W.; Margate New Church S.S.E.  $\frac{1}{4}$  E.; Pan Patch buoy N.W. by W., distant  $2\frac{1}{2}$  miles; the west buoy of the Tongue N. by E.,  $1\frac{1}{4}$  mile; and the North Spit buoy of Margate Sands E. by S., distant  $1\frac{3}{4}$  mile.

**MARGATE SAND NORTH SPIT BUOY** is black, lying in 4 fathoms, and should be left on the starboard side; it lies  $1\frac{3}{4}$  mile E. by S. from the buoy of the Wedge, and  $3\frac{1}{2}$  miles N.W. by W. from the east buoy of Margate Sand; the marks for it are, Margate Old Church tower, in line with Margate pier lighthouse, S.  $\frac{1}{4}$  E.; St. Nicholas Church tower, in line with the west end of a grove of trees west of Hale Grove, S.W.  $\frac{1}{4}$  W.; Wedge buoy W. by N.; N.E. spit buoy E. by S.  $\frac{3}{4}$  S.; and the East Tongue buoy N.E. by N.

**MARGATE SAND N.E. BUOY** is chequered black-and-white. Since it was originally laid down, it has been removed in a N.W. direction, and now lies in 6 fathoms at low water, with a windmill on the back land, in line with the centre of the new baths, in Margate east cliff, bearing S. by W.  $\frac{1}{2}$  W.; North Spit buoy W. by N.  $\frac{3}{4}$  N.; East Margate buoy S.S.E.  $\frac{1}{2}$  E.; and the East Tongue buoy N.W.  $\frac{3}{4}$  N.

**MARGATE SAND EAST BUOY** is black, with a staff and inverted cone, and lies in 4 fathoms, at the extremity of the sand; it bears S.E.  $\frac{3}{4}$  E., distant  $3\frac{1}{2}$  miles, from the North Spit buoy, its marks being, the tower of Moro Castle, between the second and third black cliffs, to the westward of the south cliff, at Kingsgate; the west end of Birchington Wood in one with the east cliff at Westgate Bay; and the North Foreland lighthouse S.  $\frac{1}{2}$  W., a little westerly, distant  $4\frac{1}{2}$  miles.

The sands we have here described, form the boundaries of the Queen's Channel, which lie between the Pan and Tongue Sands on the one side, and the South Knoll, Wedge, and Margate Sands on the other. The channel between the South Knoll and the Spell and Woolpack, is called the Horse-shoe Hole, where vessels frequently come to anchor. The Spell and Woolpack have been already described in page 47.



## DIRECTIONS FOR SAILING FROM THE NORE, THROUGH THE NOB, QUEEN'S AND PRINCE'S CHANNELS, TO THE NORTH FORELAND.

**NOB CHANNEL.**—Vessels sailing from the Nore light for the Nob Channel, should steer E.  $\frac{3}{4}$  S., which will carry them directly to the northward of the Oaze, and to the southward of the Mouse, in 6 and 7 fathoms water. In this direction they will leave the red beacon-buoy of the Oaze on the starboard side, and the black buoy of the Mouse on the port or larboard: having continued this course for  $8\frac{1}{2}$  or 9 miles, they will come abreast of the white buoy of the Oaze; bring the Mouse buoy to bear about N.W.  $\frac{3}{4}$  N., and the east buoy of the Oaze S.W., and you will have the Nob Channel clearly open; then, with a large ship and westerly wind, it will be proper to weigh at half-flood; leave the white buoy on the starboard side and steer S.E.  $\frac{1}{4}$  S., about  $2\frac{1}{2}$  miles, towards the Shivering striped black-and-white beacon-buoy, passing the red-and-white buoy on the New Nob, and the red buoy of the Nob, on the port or larboard, in 6 and 7 fathoms. Having come abreast of the above Shivering Sand east buoy, steer S.S.W. with an ebb, or S. by W. with a flood-tide, about a mile; this will carry you to a fairway, opposite to the black buoy of the Girdler, through a channel of 10 to 4 fathoms. It must here be observed, that throughout the navigation of these channels, the tide is a beam tide, for which particular allowance must be made, according to the wind, and velocity of the stream.

**OAZE, or MIDDLE CHANNEL.**—If bound through the Oaze Channel, steer from the Nore light E.S.E., about  $4\frac{1}{2}$  miles, keeping the point of land above Yantlet, a ship's length to the northward of the Nore light-vessel; this will take you to the entrance of the channel between the buoys of the Spile and Oaze; and when the west buoy of the Oaze bears N. by W., an E.  $\frac{3}{4}$  S. course will carry you along the north edge of the Shivering to a berth between the buoy of the Nob and the striped beacon-buoy of the Shivering; then proceed as before directed, for the buoy of the Girdler. In the Oaze Channel, at the western part, are 9, 10, and 11 fathoms, and as you advance, 9, 8, 7, and 6 fathoms; stand, in working down, towards each side, to 9, 8, and 6 fathoms, but large ships into not less than 8 fathoms. The lead kept going will guard you from danger; and this channel is considered preferable to that to the northward, between the Oaze, Maplin, and Mouse.

**QUEEN'S CHANNEL.**—Having, by either of the above passages, arrived at the buoy of the Girdler, bring it to bear E. by N., which having done, a S. by E.  $\frac{1}{2}$  E. course, of  $2\frac{1}{2}$  miles, will take you abreast of the Pan Sand white beacon-buoy; this passage will be across the Flats, where, with low ebbs, there are only 13 and 14 feet water; large vessels therefore, should take the flood. Bring the Pan Sand buoy to bear N. by E., or a little more easterly from you, distant  $\frac{1}{2}$  or  $\frac{1}{4}$  a mile, to avoid the new knoll, and you will have the Queen's Channel open; proceed E.S.E.  $\frac{1}{4}$  E., which course will carry you past the South Knoll, Wedge, and North Spit buoys on your starboard side, and the Pan Sand buoy, Pan Knoll buoy and beacon, the Pan Patch, and West Tongue buoys on your port or larboard side, in a good channel, of from 3 to 11 fathoms water. Being abreast of the North Spit buoy, you may proceed E.S.E., which will take you clear of the N.E. buoy of Margate Sands.

In turning down the Queen's Channel from the Pan Sand, you will have from  $2\frac{1}{2}$ , 3, and 4 fathoms to  $4\frac{1}{2}$ , so low as the Pan Patch white buoy. You may go on either side of the black buoy of the South Knoll; but the best channel and the most water is to the northward of it.

Between the Pan Sand buoy, Pan Knoll buoy, and beacon on one side, and the South Knoll buoy on the other, is the Pan Sand Hole, a convenient place for anchorage when waiting for the tide. There is also good riding between the Wedge

and North Spit buoys and the Tongue, but open to all winds from the eastward. Below the Pan Patch you deepen your water to 5, 6, 7, 8, and 9 fathoms. The upper part of the Tongue is steep-to, having 6 and 5 fathoms near the sand. The upper part of the Wedge is also steep, having 8 fathoms at a small distance from the sand; but towards the lower end of each sand you may stand to 6 fathoms. As you come down towards the north spit of Margate Sand, or between the Wedge and N.E. Spit buoys, you must not stand to the southward into less than 10 or 9 fathoms, and to the northward into less than 8 or 7; here, in mid-channel, you will have 11, 12, and 14 fathoms water.

**THE PRINCE'S CHANNEL**, lying between the Pan and Tongue Sands to the southward, and Girdler Sands to the northward, has lately been buoyed off, and the following notice given:—

*Trinity House, London, Sept. 11th, 1846.*—This Corporation has caused the channel, north of the Pan Sand and Tongue Sand, known as the *Prince's Channel*, to be marked by buoys on the south side, and two standing beacons on the north side.

Notice thereof is hereby given; and that the beacon placed on the southern extremity of the dry sand, called the *Shingles*, is distinguished by a top in the form of a diamond, which is 45 feet above low water mark, with Margate east windmill, in line with the centre of the baths on Margate cliffs, bearing S. by E.; Monckton beacon, its length on the east end of Lower Hale Grove, S.S.W.; North Foreland lighthouse S. by E.  $\frac{1}{4}$  E.; and East Tongue buoy S.E.  $\frac{3}{4}$  S.

The beacon on the south spit of the *South Girdler Sand* is distinguished by a triangle, the top of which is 45 feet above low water, with Birchington west windmill, its length on the east end of Cleave Wood, bearing S.  $\frac{1}{4}$  E.; St. Peter's Church tower, its width east of the tower of Margate Old Church, S.S.E.  $\frac{1}{4}$  E.; Shingles beacon E. by S.  $\frac{3}{4}$  S.; East Tongue buoy S.E. by E.  $\frac{1}{4}$  E.; and Girdler buoy W.N.W.

The five buoys which denote the south side of this channel, include the large black beacon nun-buoy, placed at the eastern end of the Tongue Sand, which also marks the eastern entrance of both the Prince's and Queen's Channels, and has been previously noticed. The other four buoys are marked and coloured as understated.

**NORTH PAN SAND BUOY** (black-and-white, in chequers), lies in 5 fathoms at low water, with the east end of Herne Preventive Station-house, in line with Herne Bay Pier-head, bearing S.W. by S.; St. Peter's Church tower, in line with Margate Sea-bathing Infirmary, S.E.  $\frac{3}{4}$  S.; West Pan Sand buoy S. by W.; East Spaniard buoy W.  $\frac{1}{2}$  N.; East Gilman buoy N.W.  $\frac{3}{4}$  W.; Girdler buoy N.N.W.  $\frac{1}{4}$  W.; Girdler beacon E. by N.  $\frac{1}{4}$  N.; and Shingles beacon E.  $\frac{3}{4}$  S.

**NORTH-EAST PAN SAND BUOY** (black, in  $7\frac{1}{2}$  fathoms), with Monckton beacon, its length east of a gap, near the middle of Upper Hale Grove S.  $\frac{1}{4}$  E.; North Down Tower in line with the chancel of Margate New Church, S.E. by S.; North Pan Sand buoy W. by N.  $\frac{1}{4}$  N.; Girdler beacon N.N.E.  $\frac{1}{4}$  E.; and Shingles beacon E.  $\frac{1}{4}$  S.

**NORTH TONGUE BUOY** (black, in 5 fathoms) with Chislet windmill, in line with the second house west of Reculver's Church spires, S.W. by S.; North Down Tower, in line with the east end of the baths on Margate Cliff, S.S.E.  $\frac{1}{4}$  E.; N.E. Pan Sand buoy W. by N.  $\frac{3}{4}$  N.; Girdler beacon N.W.; and Shingles beacon E.  $\frac{1}{2}$  N.

**NORTH-EAST TONGUE BUOY** (black, in  $4\frac{1}{2}$  fathoms), with Monckton beacon, its length open east of Lower Hale Grove, S.S.W.; Margate east windmill, in line with the west end of the baths on Margate Cliff, S. by E.  $\frac{1}{4}$  E.; East Tongue buoy S.E. by E.  $\frac{1}{4}$  E.; North Tongue buoy W.N.W.; Shingles beacon N. by E.; and Girdler beacon N.W. by W.

**DIRECTIONS.**—The black buoy of the Girdler will point out the north side of the western entrance of the Prince's Channel. From a cable's length south of this buoy, a S.E. by E.  $\frac{3}{4}$  E. course,  $2\frac{3}{4}$  miles, will take you midway between the Girdler beacon and the N.E. Pan Sand buoy; from thence an E.S.E.  $\frac{1}{4}$  E. course,  $3\frac{1}{2}$  miles, will

bring you between the Shingles beacon and the N.E. Tongue buoy; continuing on E.S.E. or S.E. by E.,  $1\frac{1}{2}$  mile farther, according to your distance from the Shingles beacon, will take you to the black beacon-buoy on the east end of the Tongue; from thence proceed for the Downs, as hereafter directed.

The Prince's Channel is all clear throughout, except a small *spit* to the southward of the Girdler and Shingles beacons. In going through this channel, the buoys and beacons will be your best guide; and when working through, tack immediately on the first shoal cast on either side, as the banks are generally steep-to.

From  $\frac{1}{2}$  a mile to the eastward of the East Tongue buoy steer S.S.E.  $\frac{1}{2}$  E.,  $3\frac{1}{2}$  miles, which will bring you to the east buoy of Margate Sands; from thence steer S.S.E.  $\frac{1}{2}$  S., which is the best track for large ships, until the North Foreland lighthouse comes W.N.W., and the chequered black-and-white buoy of the Elbow W. by S.; then steer S.S.W., until you get the mark on for the Gull Stream, as given hereafter.

**BULLOCK'S CHANNEL.**—This new channel, which separates the Girdler from the Long Sand, lies nearly  $1\frac{1}{2}$  mile to the westward of the Thomas's Channel, or *Smuggler's Swashway*, from which it is separated by a *bank*,  $\frac{3}{4}$  of a mile wide, which dries nearly at low water. Its southern entrance lies  $2\frac{1}{2}$  miles N.E.  $\frac{1}{2}$  N. from the east buoy of the Tongue, and N. by W. from the east buoy of Margate Sands, distant 5 miles. The course through is N.N.W.  $\frac{1}{2}$  W. and S.S.E.  $\frac{1}{2}$  E., about 4 miles, and the channel is about  $\frac{3}{4}$  of a mile wide; in the southern part you will have from 8 to 6 fathoms, but near the northern part only 18 to 20 feet at low water, and then fall suddenly into 8 fathoms in the Black Deep. From hence to the buoy of the Nob, the course is W.  $\frac{1}{2}$  S., distant  $6\frac{1}{2}$  miles. Neither this channel, nor Thomas's Channel, are either buoyed or beacons; consequently they are seldom or ever used.

**THOMAS'S CHANNEL.**—To the north-eastward of the East Tongue buoy is a channel, formed between the Girdler and Long Sand, heretofore named the *Smuggler's Swashway*, but now called Thomas's Channel. This channel is little frequented; but should you venture through, it will carry you into the Black Deep, and you can steer either way, as occasion may require; if to the westward, your course to the Nob and Shivering Sands will be about W.  $\frac{1}{2}$  S., distant  $8\frac{1}{2}$  miles; if to abreast of the Sunk light-vessel, N.E. by E., about 13 miles, in deep water, and with no known danger.

The Long Sand extends E.N.E., easterly, from Thomas's Channel, about 16 miles, where it terminates in a point, called Long Sand Head. The passage between this sand and the Sunk is about  $1\frac{1}{2}$  mile wide, and called the *Sunk Channel*; the edges of both sands are steep, and dry in various parts.

The Kentish Knock has been already described in page 43. All vessels will do well to steer out to the eastward and southward of the Knock and Long Sand Head in passing, coming into not less than 10 and 9 fathoms water. To the southward of the Knock the ground is soft mud; and to the northward it is hard sand.

**TIDES.**—Off the North Foreland the stream, during the first half-flood upon the shore, sets S.S.W., soon after which it becomes slack water; it then sets west, N.N.W., and N.W., till half-ebb: so that the ebb-tide out of Margate Roads runs 3 hours to the eastward before the tide of ebb runs to the southward through the Downs; for which reason, if your ship be in Margate Roads, with the wind at S.W., you must not make sail to beat and go round the Foreland till half-ebb, when the tide will be going to windward through the Gull Stream. At the North Foreland the tide flows, on full and change days, at  $\frac{1}{2}$  past 11. Spring-tides run about  $1\frac{1}{2}$  mile an hour, and neap-tides about  $\frac{1}{2}$  a mile. The tide often sets on all points of the compass when low water slack begins off the Foreland in gales of wind.

## THE NORTH FORELAND TO THE DOWNS, RAMSGATE, DEAL, DOVER, &c.

### *Description of the Sands, Buoy, &c.*

THE outer or common track for large ships to the *DOWNS* is through the Gull Stream, which is bounded on the eastern side by the Goodwin Sands, and on the western side by the Elbow, Gull, and Brake Sands.

THE **INNER CHANNEL** is frequented by small vessels, and lies to the westward of the Elbow and Gun. In this passage are numerous small *knolls of shallow water*; these are the *Broadstairs Knoll*, the *Thistle*, *Thorn*, *Spit*, *Coborn*, *Bill*, *Fox*, *Goose*, *Spur*, *Splinter*, *Bur*, *Crab*, *Caldron*, and *Boiler*.

THE **GOODWIN** are *extensive and dangerous sands*, which dry in several places; they are divided in the middle by a narrow *swashway*, which runs nearly E. by S. and W. by N.

The Northern Goodwin is about 8 miles long and 3 broad; its north-western edge is steep-to, and dries, having a *large ridge* running along it, called the *West Dike*; this terminates at the Trinity Swashway, which is not  $\frac{1}{2}$  of a mile wide. On the south side of this swash is a *sandy spit*, called the *Fork*, which extends S.W. by W.  $\frac{1}{4}$  W.,  $1\frac{1}{4}$  mile, where a chequered buoy is placed; that part of the spit which is nearest to the swash, and named the Bunt Head, is very shallow; the spit here is  $\frac{3}{4}$  of a mile broad, but narrows towards the buoy. From off the N.E. part of the Dike a large *dry patch* begins, and bends circularly to the eastward, forming the northern and eastern edges of the Goodwin; this is called the North Sand Head, Barrows, and East Dike.

**GOODWIN KNOLL BUOY.**—A *knoll*, of very considerable extent, has grown up to the northward of the north end of the Goodwin Sands, lying much in the way of vessels passing into and out of the Gull Stream, and having but 12 feet on some parts of it at low water, spring-tides. A buoy, striped red-and-white, is laid down near the western edge of it, in 4 fathoms at low water, spring-tides, with St. Peter's Church tower, on with the highest windmill at Broadstairs, bearing N.W.  $\frac{1}{4}$  N.; Southwood House, in one with the Obelisk on Ramsgate Pier, N.W. by W.; North Foreland lighthouse N.N.W.  $\frac{1}{4}$  W.; Gull buoy N.W.; and the Gull light-vessel W.S.W., southerly.

The Southern Goodwin is divided from the East Dike by a channel,  $\frac{1}{2}$  a mile wide, with  $4\frac{1}{2}$  and 5 fathoms, called the Gulf, or Goodwin Swash, which runs westerly into Trinity Bay. At the N.E. part of the South Goodwin is a *dry sand*, called the *Barrier*, which forms the S.E. boundary of the Gulf; and S.W. by W., about  $\frac{3}{4}$  of a mile from the Barrier, is a long *forked patch*, which also dries, called the *South and North Callipers*. The Southern Calliper extends  $2\frac{1}{2}$  miles, and forms the eastern edge of the South Goodwin, which is steep-to. A nun-buoy, of large size, coloured black, and bearing a staff and globe, is now moored off the spit of the South Calliper of the Goodwin Sands, in 10 fathoms at low water, spring-tides, about  $1\frac{1}{2}$  cable's length from the dry sand, with St. Lawrence Church, Ramsgate, its breadth open west of Ramsgate high mill, N.  $\frac{1}{4}$  W.; Shakspeare's Cliff, a little open of the South Foreland, W.  $\frac{1}{4}$  S.; South Sand Head light-vessel W. by S.; and the beacon on the Goodwin Sand N.E.  $\frac{1}{2}$  N. The North Calliper is of equal length, and bends to the westward: the flat thence stretches to the South Sand Head, increasing in depth from 3 feet to 4 fathoms. From the Gulf, which divides the North and South Goodwins, to the South Sand Head, the distance is nearly 6 miles. Off the northern end of the Goodwin a light-vessel is placed; a light-vessel also rides abreast of the Trinity Swashway; and there is a chequered buoy upon the western end of the Fork, and a light-vessel near the South Sand Head.

THE **GOODWIN LIGHT-VESSEL** has been described in page 44.

THE **GULL STREAM LIGHT-VESSEL** is moored in 8 fathoms, in the Gull

Stream, off that part of the Goodwin called the Trinity Swash. In this vessel Two LIGHTS, placed horizontally on separate masts, and elevated 14 feet above the water, are shown every night, from sunset to sunrise, for the purpose of guiding vessels in the night through the Gull Stream to and from the anchorage in the Downs.

By a Trinity House Notice, dated September 11th, 1846, the Bunt Head of the Goodwin Sand having extended itself considerably to the westward, this Corporation has caused the Gull light-vessel to be moved about  $\frac{1}{2}$  a mile in a westerly direction from its former position, to cover the shoal thereby formed; and it is now moored in  $8\frac{1}{2}$  fathoms at low water, spring-tides, with the following marks and compass-bearings, viz.:—Ramsgate Church tower, in line with Albion Hotel at that place, N.  $\frac{3}{4}$  W.; Upper Deal mill, its length on with Deal Pier, S.W. by W.  $\frac{1}{4}$  W.; South Brake buoy S.W. by W.  $\frac{1}{4}$  W.; Middle Brake buoy N.N.W.  $\frac{3}{4}$  W.; North Brake buoy N. by E.  $\frac{1}{2}$  E.; Gull buoy N.E.  $\frac{1}{2}$  N.; North Foreland lighthouse N. by E.; Goodwin light-vessel E. by N.  $\frac{1}{2}$  N.; South Sand Head light-vessel S.S.W.; and South Foreland high lighthouse S.W.  $\frac{1}{4}$  W.

**BUNT HEAD BUOY.**—*Trinity House, London, September 11th, 1846.*—The buoy, coloured black-and-white, in circular stripes, marking the extremity of the Bunt Head, has been removed about 60 fathoms in a W. by S. direction from its former position, and now lies in  $4\frac{1}{2}$  fathoms at low water, spring-tides, with the following marks, and compass-bearings, viz.:—St. Lawrence windmill, in line with the east end of the Royal Crescent on Ramsgate west cliff, N.  $\frac{3}{4}$  W.; Mongeham Church tower, in line with the gas-house chimney north of Deal, W.  $\frac{3}{4}$  S.; South Brake buoy, west; Middle Brake buoy N. by W.; Fork buoy S. by W.  $\frac{1}{4}$  W.; and Gull light-vessel N. by E.  $\frac{1}{2}$  E.

N.B.—When coming from the northward, by keeping the Gull light-vessel in line with the South Foreland high light, S.W.  $\frac{1}{4}$  W., nearly, you will pass in a fair berth outside the Gull Sand. This mark will lead you to the light-vessel, which you must pass to the westward of, and proceed as hereafter directed.

The BUOY OF THE FORK (chequered black-and-white) lies in  $6\frac{3}{4}$  fathoms, with the South Sand Head light-vessel S.S.W.  $\frac{3}{4}$  W.,  $4\frac{1}{2}$  miles; South Foreland high lighthouse S.W.  $\frac{3}{4}$  W.; Upper Deal Mill, touching the south side of the Lower Mill at Deal, W.  $\frac{1}{2}$  S.; South Brake buoy N.W., distant nearly a mile; Ramsgate Pier lighthouse, on St. Lawrence Mill, north; and the North Foreland lighthouse N. by E.  $\frac{1}{2}$  E. The S.W. entrance of the Gull Stream is between this buoy and the South buoy of the Brake.

When between the Gull light-vessel and the Fork, ships or vessels should not stand nearer to the Bunt Head than 8 or 9 fathoms water.

Trinity Bay lies to the eastward of the buoy of the Fork, and is a large opening, running in between the Fork and the South Goodwin, full a mile wide at the entrance, with a depth of 8 and 9 fathoms; it thence continues north-eastward, narrowing and shallowing to the swashway.

**SOUTH SAND HEAD LIGHT-VESSEL.**—A light-vessel is moored off the South Sand Head of the Goodwin, in 13 fathoms, and carries a single light, with the south side of a conspicuous gap on the high land to the westward of Dover Lines, on with the extreme point of the South Foreland, bearing west; the west end of the trees in Admiral Harvey's park at Walmer, on with the centre of Walmer Castle, N.N.W.  $\frac{1}{4}$  W.; the South Foreland upper lighthouse W.  $\frac{1}{4}$  N; and the Gull light-vessel N.E. by N., northerly.

**WRECKS ON THE GOODWIN, &c.**—By order of the Honourable Corporation of Trinity House, dated 8th of November, 1832,—in cases of shipwreck on the Goodwin Sands, the following directions are to be carried into effect on board the Goodwin, Gull Stream, and South Sand Head light-vessels:—

If a vessel is on shore to the northward, a white rocket is to be discharged in a northerly direction, fired at an angle of 45 degrees. If to the southward, a red rocket is to be fired in a southerly direction, at an angle of 45 degrees. If to the eastward, a blue rocket is to be fired in a perpendicular direction.

**BEACON ON THE GOODWIN.**—A beacon, erected by Captain Bullock, R.N., and called "Bullock's Safety Beacon," has been experimentally placed upon the south-eastern part of the Goodwin Sands, with the object of affording means of safety to persons who may unfortunately suffer shipwreck upon parts of these dangerous sands, from which this beacon is accessible at low water; and mariners are cautioned, that being situate a considerable distance within the south-eastern edge of this sand, this beacon is not on any account to be regarded as a beacon of direction. From it the South Sand Head light-vessel bears S.W. by W., westerly, distant about  $6\frac{1}{2}$  miles; the South Foreland upper lighthouse W.S.W.  $\frac{1}{2}$  W.; and the Goodwin light-vessel N.E. by N., about  $5\frac{1}{2}$  miles.

By a Trinity House Notice, dated July 11th, 1844, that Corporation has caused a standing beacon to be placed upon the eastern edge of the Goodwin Sands, on a spot which dries at low water, of spring-tides, and at which the under-mentioned objects bear by compass as follows, viz.:—North Foreland lighthouse N. by W.; South Foreland high lighthouse W. by S.  $\frac{1}{2}$  S.; and North Sand Head light-vessel N.N.E.  $\frac{1}{2}$  E.

Mariners are requested to observe, that this beacon is surmounted by a ball, which is elevated 51 feet above the level of the sand. They will also observe, that at the distance of 18 feet below the centre of the ball, there is a Refuge Gallery, easily accessible in case of need, and by which the beacon is rendered, at all times, readily distinguishable from the masts and balls of either of the floating light-vessels in the vicinity of the Goodwin Sands.

**THE ELBOW** is a *small narrow shoal*, in the form of an elbow, having on its N.E. extremity a black-and-white chequered buoy, surmounted by a staff and ball, in  $3\frac{1}{2}$  fathoms water, lying with Harley's Tower, on the west end of Moro Castle, bearing N.W.; the old pinnacle of the castle appearing a little to the left of Harley's Tower; St. Lawrence Church tower about a ship's length to the northward of Dumpton Point, W.  $\frac{1}{2}$  S.; and the North Foreland lighthouse N.W. by W., distant 2 miles. This buoy is to be left on the starboard or west side, in pursuing the outer track for large vessels.

From the south end of the Elbow, a *spit* extends S.E. by S.,  $\frac{1}{3}$  of a mile, having on its inner part  $4\frac{1}{2}$ , and deepening outward to 6 fathoms.

**THE GULL SAND** is a *narrow ridge*, about a mile long, lying N.W. by N. and S.E. by S.; on the middle is a shoal part of 17 feet, where a white buoy is placed, the marks for which are, Jacob's Ladder at Ramsgate, midway between the two mills west of the west pier, bearing N.W. by W.  $\frac{1}{4}$  W.; the flag-staff at Dover Castle on with that of Deal Castle; and the North Foreland lighthouse N. by W.  $\frac{1}{3}$  W. Ships cross over the eastern end of this shoal, in  $4\frac{1}{2}$  fathoms, about  $\frac{1}{2}$  a mile to the eastward of the buoy.

**NORTH BAR.**—*Trinity House, London, September 16th, 1846.*—A small *knoll*, having recently grown up on the North Bar, in the track of shipping navigating between the Gull Knoll and the Brake Sand, a black buoy, marked "North Bar," has been laid on the shoalest part of the said knoll, in 2 fathoms at low water, spring-tides, with the following marks, and compass-bearings, viz.:—St. Clement's Church, Sandwich, its breadth open to the northward of Woodnesbro' Church, W.  $\frac{1}{2}$  S.; St. Lawrence Windmill, just open to the northward of Mount Albion trees, N.W.  $\frac{1}{4}$  N.; North Brake buoy N.W.; North Foreland lighthouse N.  $\frac{1}{4}$  W.; Gull buoy N.E. by E.; Goodwin light-vessel S.E. by S.  $\frac{1}{4}$  S.; and Gull Stream light-vessel S.W.  $\frac{1}{4}$  S.

**THE BRAKE** is a narrow, but extensive *sand*, lying about N.E. by N. and S.W. by S., being  $4\frac{1}{2}$  miles long, with a fathom only in some parts, and has a buoy at each end, and one in the middle.

The NORTH BUOY of the BRAKE (red) lies W.  $\frac{1}{4}$  N.,  $1\frac{1}{2}$  mile from the white buoy of the Gull, with St. Lawrence Church, on with the North Cliff Point at Ramsgate, N.W. by N.; and the North Foreland lighthouse N. by E., northerly.

The MIDDLE BUOY of the BRAKE (chequered red-and-white) is placed about

midway between the north and south buoys, on the eastern side of the sand. This buoy has lately been removed farther to the westward, and now lies in  $5\frac{1}{2}$  fathoms water, with Upper Deal Church cupola, in line with the windmill next south of Sandown Castle, S.W. by W.; St. Lawrence windmill, its apparent width east of Ramsgate pier lighthouse, north; North Brake buoy N.E.  $\frac{1}{2}$  N.; Fork buoy S.  $\frac{1}{4}$  E.; and the Gull light-vessel S.S.E.  $\frac{3}{4}$  E.

The **SOUTH BUOY** of the **BRAKE** (black), with staff and ball, lies in  $4\frac{1}{2}$  fathoms, on the outer part of a knoll, at the tail of the Brake Sand. This buoy has also been moved to the westward, and now lies with Waldershare Monument, in line with a barn, midway between two windmills next south of Sandown Castle, W.  $\frac{3}{4}$  S.; North Foreland lighthouse, in line with the Preventive Station House on Broadstairs east cliff, N.N.E.; Middle Brake buoy N.N.E.  $\frac{1}{2}$  E.; Fork buoy S.E.  $\frac{1}{2}$  E.; South Deal Bank buoy S.W.  $\frac{1}{2}$  S.; Gull light-vessel N.E. by E.  $\frac{1}{2}$  E.; and the South Sand Head light-vessel S. by W.  $\frac{1}{4}$  W. Vessels, nearing this buoy from the Gull Stream, should not bring it to bear to the southward of S.W., and never attempt to cross the sand to the northward of it.

**BROADSTAIRS KNOLL**.—We have already noticed, that numerous *shoals* abound in the Inner Channel, rendering it unfit for any but small vessels. Of these shoals there is one, called the *Broadstairs Knoll*, having only  $2\frac{1}{2}$  fathoms over it at low water, and lying directly in a line between the buoy of the Elbow and the North Foreland lighthouse; the marks for it are, Broadstairs mill, on with the chimney of the middlemost house upon Crow Hill, bearing west, a little northerly; a small hut, near the public-house at Kingsgate, just open with the ice-house point, bearing about N.N.W.  $\frac{3}{4}$  W.; and the North Foreland lighthouse N.W. by W., distant a mile. It is a small round knoll, and dangerous for vessels drawing more than 15 feet water. Within this knoll are two others, called the *Fox* and *Goose*, lying about  $\frac{1}{4}$  of a mile to the westward; the former has  $2\frac{1}{2}$  fathoms over it, and the latter  $3\frac{1}{2}$  at low water; they lie nearly  $\frac{3}{4}$  of a mile from shore, and between the shore and them are 4 and 3 fathoms. Many other spots of *shallow ground* lie to the southward, as the *Thorn*, *Thistle*, *Spit*, *Crab*, *Boiler*, *Caldron*, *Burr*, *Bill*, *Splinter*, *Spur*, *Colborn*, *Cob*, &c. These are mostly situated on the flat which extends from the North Foreland to the Brake, and are to be met with in your passage to Ramsgate, which should never be attempted but by those well acquainted with the navigation.

**THISTLE**.—There is a black buoy placed upon the *Thistle*, called sometimes *Broadstairs Knoll*, in 5 feet water; its marks are, the extremity of Broadstairs pier-head, distant a mile, on with the Albion Hotel at Broadstairs, bearing N.W. by W., westerly; the northernmost church at Sandwich, a ship's length open south of Ramsgate pier-head, W.S.W.; and the North Foreland lighthouse N. by W., westerly, distant  $1\frac{1}{2}$  mile. Vessels drawing 9 feet water, and upwards, are recommended to go, at low water, to the eastward of this buoy.

## DIRECTIONS FOR SAILING FROM MARGATE ROAD AND FROM SEA TO THE DOWNS.

**LARGE** vessels proceeding from *MARGATE ROAD* to the *DOWNS*, will take care to keep clear of the *Long Nose Rocks*, which stretch out from Foreness full  $\frac{1}{2}$  a mile, by bringing Birchington Seed Mill open of Ledge Point, or Birchington Church open of Margate East Cliff, or by passing to the northward of the red buoy, until the North Foreland lighthouse bears S.S.W.  $\frac{1}{4}$  W.; they will then steer S.S.E., according to the tide and distance from the Foreland; such course will take them to the eastward of the chequered black-and-white beacon-buoy of the Elbow; in this track they will have from  $5\frac{1}{2}$  to 8 fathoms water. Having passed the buoy of the Elbow, they may continue in that direction until the leading-mark for the

Gull Stream comes on; or leaving the buoy about N.W., distant a mile, run S.S.W.  $\frac{1}{2}$  W. for that mark, which is the South Foreland high light, on with the middle of Old Stairs Bay, bearing S.W.  $\frac{1}{2}$  W.

In coming from sea, ships must not bring the North Sand Head or Goodwin light-vessel to the eastward of S.E., until the Gull Stream light-vessel bears S.W.  $\frac{1}{2}$  W., and the North Foreland lighthouse N.N.W.  $\frac{1}{2}$  W. They will then have the Gull Stream open, and by steering S.W.  $\frac{1}{2}$  W., until they bring the Gull light-vessel N.E. by E.  $\frac{1}{4}$  E., or being to the southward of the South Brake buoy, they may run W.S.W., for an in-shore berth in the Downs, or keep on a S.W.  $\frac{1}{2}$  W. course for the man-of-war's roadstead.

Particular care and attention must be observed in taking the above bearings, and in the steering of ships, as the angles are small and the channel narrow, both in sailing for the Downs in the night, and also being unavoidably driven, or in sailing, through the Gull Stream to the northward.

The Gull Stream light-vessel must at all times be passed to the westward, as before observed. It has two lanterns, with lamps and reflectors. They are hung low, and will seldom exceed the height of 14 feet from the water's edge.

The white buoy of the Gull and black buoy on the North Bar on the starboard, and the Goodwin light-vessel on the port or larboard side, will be a proper guide for the entrance of the Gull Stream; but do not approach too near to the Goodwin.

Small vessels proceeding through the INNER CHANNEL, or to the westward of the Elbow and Gull Shoals, for the DOWNS, should sail round the North Foreland, as before directed,—that is, by keeping Birchington seed-mill open of Ledge Point, bearing west, a little southerly, until the North Foreland lighthouse comes S. by W.; your course and distance will then be S.S.E.,  $2\frac{1}{2}$  miles; or until the lighthouse bears W by S.; then steer S.S.W.  $\frac{1}{2}$  W.,  $8\frac{1}{2}$  miles, which will lead you directly to a berth between the South Brake buoy and the buoy of the Fork, whence you may proceed to the Downs. In this track you will pass between Broadstairs Knoll and the Fox and Goose, leaving the former to the eastward, and the latter to the westward, and thence over two *shoal patches*, of 2 and  $2\frac{1}{2}$  fathoms; also to the eastward of the buoy of the Thistle, giving it a good berth to the eastward of the buoys of the Brake, and to the mark for the Gull Stream. None but small vessels should adopt this passage, or go to the westward of the Elbow and Gull Shoals.

Large vessels leaving the Queen's or Prince's Channels, when abreast of the east buoy of Margate Sands, should steer about S. by E.  $\frac{1}{2}$  E., until they have passed the Elbow buoy, leaving it on the starboard side, and not going nearer to it than 2 cables' length. With Harley's Tower a ship's length open to the right of the highest tower of Moro Castle, bearing N.W.  $\frac{1}{2}$  W., you will be to the northward of all the shoals; and by bringing Ash Church spire open to the west of West Cliff, bearing W.  $\frac{1}{2}$  S., nearly, you will go to the south-eastward of the Elbow. Being to the eastward of the Elbow buoy, about a mile, a S.S.W.  $\frac{1}{2}$  W. course will lead to the eastward of the Gull Shoal: you will then have the Gull Stream leading-mark on, and may proceed in this direction to the ANCHORAGE in the DOWNS. But in thick weather, when the above mark cannot be seen, and you are abreast of the shoals, take, with your sextant, the angle subtended by the North Foreland lighthouse, and if it measures less than 10 minutes of a degree, you will be far enough to the eastward of the shoals; but if more, you will be near the Elbow Shoal, and must be governed accordingly.

In working through the Gull Stream, you may bring the South Foreland upper light from cliff to cliff of Old Stairs Bay, keeping your lead always going, and stand towards the Goodwin into 8 fathoms, and the Brake into 6 fathoms, so far as the Bunt Head; but from thence to the buoy of the Fork, no nearer than 9 fathoms, nor to the Brake than 7 fathoms. The Gull light-vessel is a good guide at all times, for the soundings are irregular; and the channel between the Bunt Head and the Brake, has considerably narrowed.



## ANCHORAGE IN THE DOWNS, WITH DIRECTIONS FOR SAILING TO AND FROM RAMSGATE, &c.

HAVING passed through the Gull Stream for the Downs, the marks for anchoring with a large ship are, the South Foreland high lighthouse on with the middle of Old Stairs Bay, and Upper Deal mill on with Deal Castle, in 7, 8, or 9 fathoms, good holding clay ground. Moor with your best bower southward, so as to have an open hawse with southerly winds. If you are in the Downs in the night-time, and the wind blows so hard from the S.S.E. or south, that you part from your anchors, you must endeavour to bring the South Foreland high light to bear S.W.  $\frac{1}{2}$  W, and steer N.E.  $\frac{1}{2}$  E., which course will carry you out through the Gull Stream, between the Brake and the Goodwin. Be careful to keep your lead going, as before directed; and when you are advanced so far to the northward as to bring the North Foreland light to bear N.W. by N., you may steer E.S.E., or east, which will carry you clear of the North Sand Head and light-vessel. You will have no more than 6 or 7 fathoms on the flat, off the Foreland; but when you deepen your water to 18 or 20 fathoms, you will be outside of all the sands, and may steer either to the northward or to the southward, as occasion shall require. Small vessels drawing less than 16 feet water, may proceed through the Inner Channel, as before directed.

**DEAL BANK**, of which coasters and small vessels must be very cautious, lies off Deal Town, about  $\frac{1}{2}$  a mile from shore, and has in one part no more than 12 feet on it.

There were formerly two red buoys on the Deal Bank; but, by a Trinity House notice, dated April 7th, 1845, these buoys were taken away, and a red buoy placed on a projecting point of the sand, with Upper Deal mill in line with the south end of Deal barracks, W.  $\frac{3}{4}$  S.: East Hill semaphore, in line with the north end of Old Stairs Bay south cliff, S.W.

**SMALL DOWNS**.—The Small Downs is that space which is between the south end of the Brake and the shore, extending about 2 miles from Sandown Castle towards Ramsgate. In it there is good anchoring, in from 6 to  $2\frac{1}{2}$  fathoms. The best marks for anchoring are, the Bullock sand-hill, which stands about 2 miles to the northward of Sandown Castle, appearing between the two churches of Sandwich, or with Deal mill and Sandown Castle in one, or St. Margaret's Church on with the small mill to the northward of Deal.\*

To the northward of the Small Downs, between the Brake and Ramsgate, lies the Inner or Ramsgate Channel, for navigating which, the following directions have been given by the Harbour Trust at Ramsgate:—

**RAMSGATE**.—It being of importance that ships should not run for this harbour when it is low water, the following rules must be observed:—

A red flag will be hoisted upon the cliff, near Jacob's Ladder, in the day-time, when there are 10 feet water between the pier-heads; and, in the night, a light in the lighthouse upon the west pier will be lighted, when there is the same water; and they will respectively be continued until the water falls to 10 feet. The light is composed of three large Argand lamps, with reflectors.

The lights in the windows at Ramsgate Town having been frequently mistaken for the harbour light on the pier-head, shades of red-coloured glass have been fixed to the latter, so that the lantern now produces a clear and distinct red light, by which such mistakes will in future be prevented.

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\* **DEAL**.—A commodious pier has been run out at Deal; and, for the accommodation of ships requiring water, a company has been recently formed for supplying the town with water. Pipes have been laid down to the end of the pier, at considerable expense, for the supply of that invaluable comfort. Ships' boats may now lie at the end of the pier (except at dead low water, spring-tides,) and fill their casks without risk.

It is high water, full and change, in the harbour, at 20 minutes after 11; and at 20 minutes after 9 in the morning; the tide begins to set N.E., and continues 5 hours and 25 minutes. On the moon's quarters it is high water at about 20 minutes after 4. At about an hour after the 10-foot signal is made, there will be 16 feet water with spring-tides between the pier-heads; 2 hours after, or at high water, about 20 feet; with neap-tides, 1 hour after the 10-foot signal is made, there will be 12 feet; 2 hours after, or at high water, 15 feet.

To sail in from off Sandown Castle, steer about midway between the shore and the Brake, keeping St. Lawrence Church about a ship's length open to the eastward of West Cliff Lodge (a white house, which stands on the cliff between Pegwell White Cliff and Ramsgate), bearing N.  $\frac{1}{2}$  E., for about 4 miles, until you bring Woodnesbrô' or Wednesbury Church (in the country) in a line with St. Clement's Church at Sandwich, which is the southernmost of the two churches in that town; you will then be as far as the Rattler Shoal, near which is placed a white buoy, and will have the lighthouse coming on with the highest house on the east cliff of Ramsgate, commonly called the Duchess's House; keeping these in one, will lead you up to a red beacon-buoy, which lies W.S.W. from the lighthouse, distant  $\frac{3}{4}$  of a mile, in  $6\frac{1}{2}$  feet at low water. Pass close on the outside of this buoy, and steer directly for the west pier-head, taking care to keep within the transporting black buoy, placed just without the entrance of the harbour.

In approaching the harbour, if the tide sets to the eastward, keep a good sail on the ship, and steer close to the west pier-head (you cannot be too close), and if you cannot conveniently make fast to one of the buoys within the harbour, throw all your sails aback, and let go your anchor; or, if you have no anchors, run on the East Bank, directly towards the pier-house: you will then be under the direction of the Harbour Master, who will order you into a proper berth.

N.B.—The best time to enter Ramsgate Harbour (if the vessel does not draw too much water), is 2 hours before high water, or when the tide begins to set to the N.E., outside of the pier-heads.

A boat and men are appointed by the Harbour Trust, to attend ships coming into the harbour, without expense; they in general make a rope fast to bring you up, and then leave you, if there are many ships coming in: but if not, they assist farther.

DIRECTIONS for SAILING towards the harbour in the NIGHT, which is only to be attempted by vessels of burthen in cases of extreme necessity:—

All captains of ships in the Downs, in bad weather, should know their exact situation before dark, by intersected bearings of Sandown Castle and the Half-way Houses, and consequently their bearings and distance from the point where the white buoy within the Rattler is placed. They should also keep a good look-out for, and note the time when, the 10-foot signal is made.

If vessels part their anchors, or are obliged to cut from them, they must steer by their bearings (obtained before night), such course as will bring them to the white buoy, when the western reflector of the light on the west pier-head will bear N.E. by N. by compass (the only guide in the night): keeping the light on these bearings, will bring you to the west pier-head, when you must enter in the manner before directed.

N.B.—If the tide be running to the eastward, you must take particular care not to let the light get to the northward of N.E. by N., till you almost touch the pier-head, or the tide will certainly set you to the eastward past the entrance. It is hoped that no vessel will cut, or run for Ramsgate Harbour, in the night-time, unless in case of real distress, lest, by so doing she run into greater danger, with a view to avoid only a temporary gale, which perseverance and good ground-tackle might have enabled her to ride out at least till day-light. But the safest way, in the night-time, is to run for the Gull Stream, by bringing the South Foreland high light to bear S.W.  $\frac{1}{2}$  W., till you come abreast of the Gull Stream light, keeping her on your starboard side; then steer N.E.  $\frac{1}{2}$  N., until you bring the Goodwin light-vessel to bear S.E., in 7 or 8 fathoms water. You may then anchor, or bring-to for the night.

There is an Inner Channel or Passage to Ramsgate, leading to the northward of the Brake; and this is only fit for small vessels, being much encumbered with *shoals*, the situations of which will be best understood by an inspection of the chart. There are two channels, one called the Cliff's End Channel, and the other the Lighthouse Channel; neither of them ought to be attempted by any person not well acquainted with them.

The *shoals* which bound these Channels, are the *Rattler, Bramble, Cross Ledge, Cracker, Race, Rat, Quern, Dike, Nut, Cob, and Coburn*, some of which have only 4 feet over them.

**The LIGHTHOUSE CHANNEL** is a narrow channel, situated between the Quern and the Dike, and chiefly used by those bound to Ramsgate from the northward. To sail through this passage, bring Ramsgate pier lighthouse its breadth open to the right of West Cliff Lodge Stables, or West Cliff Lodge its own length on the advanced pier-head: this will lead from the southward of the Gull to the northward of the red buoy of the Brake, the Nut, and Quern. The least water in this channel will be 9 feet.

N.B.—Masters of vessels using Ramsgate Channel (commonly called Cudd's Channel), in the night-time, are cautioned to keep the light open to the westward of the two guide-lights on the west cliff, which are placed to the westward of all the gas-lights of the town; and further to notice, that these two small lights kept in one, will lead through Cudd's Channel in the best of the water, towards the harbour mouth.

The black fairway buoy, in the Old Cudd's Channel, has been removed to the S.W. extremity of the Dike Spit; and a white buoy has been placed on the N.E. edge of the Quern Ridge. Masters of vessels, pilots, and other persons using the said channel, are to observe, that the proper course into Ramsgate Harbour, will now be between the above-mentioned buoys. The width of the channel between these buoys is less than a cable's length.—*Trinity House Notice, Dec. 1844*

**The CLIFF'S END CHANNEL** lies between the Quern and Cracker, and to the southward of the buoy of the Brake. To sail through this passage, you must bring the northern clump of trees, near Bedlam Farm, on with the Cliff's End White Point, keeping the house itself well open of the point when abreast of the Quern; but when abreast of the Cracker, take care to shut the house more, or bring it quite on with the Cliff's End. When the North Foreland light is directly on with the north cliff of Broadstairs, you will be to the north-eastward of the Quern; the thwart-mark for the south end of which is, St. Lawrence Mill on with the north cliff of Ramsgate; and with the top of St. Peter's Church a handspike's length above the land, you will be clear of the Dike.

Ships in the DOWNS, when bound to the westward with southerly winds, should weigh at slack water, and cast their heads towards the shore. In turning out of the Downs, great care must be taken to avoid those sands which lie in the way. Stand no nearer to Deal Bank than 7 fathoms, nor into less than 13 or 12 fathoms off the pitch of the Foreland. Stand towards the Goodwin Sands into 12 fathoms, until Ringwold Church comes on with the Old Wall to the northward of Kingsdown; then tack when in 14 fathoms, as the Goodwin is, from thence to the South Sand Head, steep-to.

The marks to carry you clear of the South Sand Head are, Upper Deal Mill, open a ship's length to the southward of Walmer Castle, about midway between it and the first cliff, or Folkstone Church a little to the left of Shakspeare's Cliff. Upper Deal Church in one with Walmer Castle, will carry you a full mile to the southward of the sand, in 13 or 14 fathoms. In the night, keep the South Foreland lights in one, bearing W. by N., northerly. Between the South Sand Head and the South Foreland, you will have from 10 to 15 fathoms; the deepest water is nearest to the Foreland. At the South Sand Head, Shakspeare's Cliff appears just as much to the left of the South Foreland, as the higher light appears to the right of it. But the best guide is the light-vessel, described in page 60.

To sail to the northward of the North Sand Head, bring St. Peter's Church tower well open to the right of Broadstairs Mill, N.W.  $\frac{1}{4}$  N., and you will clear the Goodwin Knoll of 9 feet; and in the night-time stand no nearer than to bring the North Foreland light N.W.  $\frac{3}{4}$  N., nor come into less than 8 fathoms.

TIDES.—In the DOWNS the tide flows till a  $\frac{1}{4}$  past 11 o'clock, on the change and full days of the moon, and the spring-tides rise 18 feet, neaps 10 or 12; at the South Foreland it flows till 5 minutes past 11. In the stream, in the Downs, the tide runs north-eastward about  $3\frac{1}{2}$  hours after it is high water by the shore; the ebb, or the north-eastern stream, runs about  $6\frac{1}{2}$  hours; and the flood, or south-western stream,  $5\frac{1}{2}$  hours. When the wind is at N.E., and blows strong, it sometimes keeps back the tides an hour or more: southerly winds have a contrary effect. The first of the ebb sets strong over the South Sand Head towards the Bunt Head, and outwards over the North Sand Head: the middle part sets more over the Sand for the Gull Stream, and the latter part sets over the North Sand Head for the Bunt Head, and then outwards again over the South Sand Head.

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### TO SAIL TO THE EASTWARD OR BACK OF THE GOODWIN SANDS, TO THE DOWNS.

To sail to the northward of the North Sand Head, bring St. Peter's Church tower well open to the right of Broadstairs Mill; in the night, bring the North Foreland light N.W.  $\frac{3}{4}$  N., and come no nearer than 8 fathoms; and should the North Sand Head light-vessel be gone, keep the North Foreland light in the above bearing, until you get into 18 fathoms, and keep the lead going. From the depth of 18 fathoms, a S.S.W. course, for 5 miles, until past the Swashway, then a W.S.W. course, for 5 miles, will bring you to the southward of the South Sand Head; or, when you get the South Foreland lights W. by N., or in one, you may steer boldly in for the Foreland, into 13 or 12 fathoms; then steer N.N.E.  $\frac{1}{2}$  E. or N.E. by N., for the Downs.

In the day-time, Folkstone high land, clear of Shakspeare's Cliff, is the mark for sailing in clear of the South Sand Head. In proceeding from the North Foreland to the back of the Goodwin, with a southerly wind, endeavour to be off the North Sand Head when the tide begins to run to the southward, and come no nearer to the east side of the Goodwin than 16 or 17 fathoms, until you get the South Foreland lights in one. Keep the lead going.

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*Magnetic Bearings, and Distances in Nautic Miles, from the Nore Light-vessel, and from Buoy to Buoy, through the different Channels, to Orfordness, Yarmouth, and the North Foreland.*

*Swin, King's Channel, Sledway, and Hollesley Bay.*

Names of Places.		Compass Bearings.	Sea Miles.
From the Nore light-vessel to Shoebury Knock buoy	.....	NNW	2½
... .. Blacktail beacon	.....	E ½ N	5½
... .. Mouse light-vessel	.....	East	8
... .. Maplin buoy	.....	E ½ N	8½
Mouse light-vessel to the Blacktail beacon	.....	WNW	2
... .. Maplin buoy	.....	NE ½ N	1½
... .. Maplin lighthouse	.....	NE by E ½ E	4
... .. Swin Middle light-vessel	.....	NE by E, nearly	8
... .. West Barrow buoy	.....	ENE ½ E	3
Maplin lighthouse to Maplin buoy	.....	W by S	2½
... .. Blacktail beacon	.....	W by S	5½
... .. Mouse buoy	.....	SW by W ½ W	3½
... .. Whitaker Spit beacon	.....	NE, a little northerly	5
... .. Swin Middle light-vessel	.....	NE ½ E	4½
... .. West Barrow buoy	.....	SW ½ S	1½
Whitaker Spit beacon to the Middle light-vessel	.....	S ½ W	1
... .. Whitaker Spit buoy	.....	E by N	1½
... .. Middle Hook buoy	.....	E ½ S	3
... .. Sunk light-vessel	.....	East, a little northerly	15½
... .. Gunfleet beacon	.....	E by N	10½
... .. SW Gunfleet buoy	.....	E by N	6½
... .. Swin Spitway South buoy	.....	NE by E ½ E	3
Middle Hook buoy to the Middle light-vessel	.....	W by S	3
... .. Whitaker Spit buoy	.....	WNW ½ W	2½
... .. Swin Spitway South buoy	.....	NNW	2
... .. SW Gunfleet buoy	.....	NE by E ½ E	3½
... .. Gunfleet beacon	.....	ENE ½ E	7½
... .. Sunk light-vessel	.....	E ½ N	12
... .. Heaps beacon-buoy	.....	E by S	3
Gunfleet beacon to the Heaps beacon-buoy	.....	SW ½ W	5
... .. Sunk light-vessel	.....	E by S ½ S	5
... .. South Ship Head beacon-buoy	.....	ENE ½ E	12
... .. Gunfleet Head beacon-buoy	.....	ENE, nearly	5
Gunfleet Head buoy to the West Rocks SE Spit buoy	.....	NE by E	3
... .. South Ship Head beacon-buoy	.....	E by N ½ N	7½
... .. Long Sand Head buoy	.....	SE ½ S	7½
... .. Sunk light-vessel	.....	S by E	3
Sunk light-vessel to the Rough buoy	.....	NNE ½ E	8
... .. Gunfleet beacon	.....	W by N ½ N	5
... .. Naze Tower	.....	NNW ½ W	8½
... .. Gunfleet Head buoy	.....	N by W	3
... .. Baudsey Sand SW buoy	.....	NE by N	11½
... .. Orfordness high light	.....	NE ½ N	18½
... .. Baudsey Sand NE buoy	.....	NE ½ N	15½
... .. North Ship Head light-vessel	.....	NE, a little easterly	16½
... .. South Ship Head buoy	.....	NE by E	8
... .. Long Sand Head buoy	.....	SE ½ E	5
South Ship Head beacon-buoy to Baudsey Sand NE buoy	.....	NNE ½ E	7½
... .. Baudsey Sand SW buoy	.....	North	5
... .. Rough buoy	.....	NW by W	3½
... .. West Rocks SE Spit buoy	.....	West	4½
... .. Long Sand Head buoy	.....	S by W ½ W	8½
... .. North Ship Head light-vessel	.....	NE ½ N	8½
Rough buoy to the West Rocks SE Spit buoy	.....	SW ½ S	3
... .. Cutler buoy	.....	North	3½
... .. Whiting SW buoy	.....	NNE ½ E	6½
... .. Baudsey Sand SW buoy	.....	NE by N	3½
... .. Baudsey Sand NE buoy	.....	NE ½ E	7½
... .. North Ship Head light-vessel	.....	NE by E ½ E	8½

<i>Names of Places.</i>		<i>Compass Bearings.</i>	<i>Sea Miles.</i>
From the Baudsey Sand SW buoy to the Cutler buoy .....	WNW .....	2½	
... .. Whiting SW buoy .....	NNE .....	3	
... .. Baudsey Sand NE buoy .....	NE by E ½ E .....	4½	
... .. North Ship Head light-vessel .....	E by N ½ N .....	5½	
Whiting SW buoy to the Cutler buoy .....	SW by W ½ W .....	4	
... .. Whiting Elbow buoy .....	NE ½ E .....	2½	
... .. Baudsey Sand NE buoy .....	E by S ½ S .....	2½	
Whiting Elbow buoy to Whiting SW buoy .....	SW ½ W .....	2½	
... .. Whiting NE beacon-buoy .....	E by N .....	1½	
Whiting NE beacon-buoy to Orfordness high lighthouse .....	NE by N .....	1½	
... .. North Ship Head light-vessel .....	SSE .....	3	
... .. Baudsey Sand NE buoy .....	S by W .....	2½	
North Ship Head light-vessel to Orfordness high lighthouse, N by W ½ W .....	W ½ W .....	4	
... .. Ridge North buoy .....	NNE .....	5½	
... .. Sizewell buoy .....	NNE ¾ E .....	10½	
... .. Aldborough Knapes buoy .....	NE .....	6½	
... .. Baudsey Sand NE buoy .....	W ½ N .....	2	
Orfordness high light to the North Foreland light .....	SW by S, southerly .....	43	
... .. Galloper light .....	S by E .....	24	
... .. Buoy of the Inner Gabbard .....	SSE ¾ E .....	15	
... .. Buoy of the Outer Gabbard .....	SE .....	19	
... .. Covehithe Ness .....	NE ½ N .....	19	
... .. Buoy of Aldborough Knapes .....	E ½ N .....	5½	
... .. Sizewell Bank buoy .....	NE ½ E .....	7½	
... .. Barnard SW buoy .....	NE, a little easterly .....	19	
... .. South Newcome buoy .....	NE, a little northerly .....	23	
... .. South buoy of the Corton .....	NE, a little easterly .....	24½	
Lowestoff to Yarmouth Roads .....	NNE .....	7	

*Five-Fathoms, Horse, and South Channels.*

From the Nore light-vessel to the Cant Edge buoy .....	ESE ½ S .....	3½
... .. Spile buoy .....	SE .....	3½
... .. Middle West buoy .....	SE ½ S .....	5
... .. Spaniard West buoy .....	SE ½ S .....	6
Cant Edge buoy to the Spile buoy .....	South .....	1
Spile buoy to the Middle West buoy .....	SE by S .....	1
Middle West buoy to the Middle beacon .....	ESE ½ E .....	1½
... .. Spaniard West buoy .....	SE ½ S .....	1
... .. Spaniard Middle buoy .....	SE by E .....	2½
Middle beacon to the Spaniard West buoy .....	W ½ S .....	1
... .. Spaniard Middle buoy .....	S by E ½ E .....	1½
... .. Spaniard East buoy .....	ESE ½ E .....	2½
Course through the Five-Fathoms Channel .....	ESE .....	
till abreast of the Middle beacon, then E ½ S will lead through.		
Spaniard West buoy to the Spaniard East buoy .....	E by S .....	4
Spaniard East buoy to the West beacon-buoy of the Last .....	SSE ½ E .....	5
... .. Fan Sand West buoy .....	ESE .....	3
... .. South Knoll buoy .....	SE by E ½ E .....	4½
Last West beacon-buoy to the Last Middle buoy .....	ESE ½ E .....	
... .. Last East buoy .....	ESE .....	1½
... .. Horse buoy .....	SE by S .....	1½
the Horse buoy to the Last Middle buoy .....	NE ½ E .....	
... .. Last East buoy .....	East .....	
... .. Gore Patch buoy .....	ESE .....	1½
... .. Hook beacon .....	ESE ½ S .....	2
Gore Patch buoy to the Last East buoy .....	NW ½ W .....	
... .. Hook beacon .....	SE by E .....	
Hook beacon to the white beacon-buoy at the Gore .....	ESE .....	1½
White beacon-buoy to Margate Sand east buoy .....	E ½ N .....	5½
... .. Long Nose buoy .....	ESE .....	6

*Nob, Prince's, and Queen's Channels.*

From the Nore light-vessel to the Oaze West beacon-buoy .....	ESE ½ E .....	4½
... .. Mouse buoy .....	East .....	1½
... .. Oaze East buoy .....	E ½ S .....	1½

*Bearings and Distances, &c.*

	<i>Names of Places.</i>	<i>Compass Bearings.</i>	<i>Sea Miles.</i>
From the Oaze West buoy to the Mouse buoy	.....	ENE	3½
... ..	... Oaze East buoy	East	4
... ..	... Shivering Sand East buoy	ESE	5½
... ..	... Spile East buoy	SSE ½ E	1½
... ..	... Spile West buoy	SW by W	2
... ..	... Middle Oaze buoy	East	2
Oaze East buoy to the Mouse buoy	.....	NNW	1½
... ..	... Nob buoy	E by S ½ S	2½
... ..	... Shivering Sand East buoy	SE	2
... ..	... New Nob buoy	East	1½
Shivering Sand East buoy to the Nob buoy	.....	NE by E	1½
... ..	... Girdler buoy	S by E	½
... ..	... New Nob buoy	North	1½
... ..	... Spaniard East buoy	SW ½ W	3
Girdler buoy to the Pan Sand West beacon-buoy	.....	S by E ½ E	2½
... ..	... North Pan Sand buoy	SSE ½ E	1½
... ..	... NE Pan Sand buoy	SE ½ E	2½
... ..	... South Girdler beacon	ESE	2½
... ..	... East Tongue buoy	SE by E ½ E	8
South Girdler beacon to the Shingles beacon	.....	E by S ½ S	3½
... ..	... North Tongue buoy	SE, easterly	1½
... ..	... NE Tongue buoy	SE by E ½ E	3½
... ..	... East Tongue buoy	SE by E ½ E	5½
Shingles beacon to the Girdler beacon	.....	W by N ¼ N	3½
... ..	... North Tongue buoy	W ½ S	2
... ..	... NE Tongue buoy S by W	S by W	¾
... ..	... East Tongue buoy	SE ½ S	2
Pan Sand West beacon-buoy to Pan Sand beacon	.....	ESE	1
... ..	... Pan Patch buoy	ESE	2½
... ..	... South Knoll buoy	SE	1½
South Knoll buoy to Pan Patch buoy	.....	E by N	1
... ..	... Tongue West buoy	East	3
... ..	... Wedge buoy	ESE	3
... ..	... Margate Sand North Spit buoy	ESE ½ E	4½
Tongue West buoy to the Pan Patch buoy	.....	West	2½
... ..	... Wedge buoy	S by W	1½
... ..	... Margate Sand North Spit buoy	SE	2½
... ..	... Margate Sand chequered buoy	SE by E	4½
... ..	... Margate Sand East buoy	SE ½ E	5½
... ..	... Tongue East buoy	ESE ½ E	2½
Tongue East buoy to the Margate Sand chequered buoy	.....	SE ½ S	2½
... ..	... Margate Sand East buoy	SE by S	3½
... ..	... Shingles beacon	NW ¼ N	2
... ..	... NE Tongue buoy	NW by W ¼ W	1½
... ..	... Girdler beacon	NW by W ¼ W	5½
Margate Sand North Spit buoy to the Wedge buoy	.....	W by N	1½
... ..	... Tongue West buoy	NW	2½
... ..	... Tongue East buoy	NE by N	1½
... ..	... Margate Sand chequered buoy	ESE	2
Margate Sand East buoy to the Tongue East buoy	.....	NW by N	3½
... ..	... Margate Sand chequered buoy	NNW ½ W	1½
... ..	... North Foreland lighthouse	S ½ W	4½
... ..	... Long Nose buoy	South	2½
... ..	... Elbow buoy	S by E ½ E	6
... ..	... Goodwin light-vessel	S by E ½ E	10
Elbow buoy to the Gull buoy	.....	SSW	2½
Gull buoy to the Gull light-vessel	.....	SW ½ S	3½
Gull light-vessel to South Foreland high light	.....	SW ¼ W	9

## RATES OF PILOTAGE

To be demanded and received by PILOTS, Licensed by the CORPORATION of TRINITY House, within the undermentioned limits: as per Act 6 of Geo. IV., cap. 125.

Nore to or from London.	Nore to or from Blackwall.	Nore to or from Gravesend.	Nore to the Downs or Orfordness.	Draught of Water.	London to the Downs or Orfordness.	Blackwall to the Downs or Orfordness.	Gravesend to the Downs or Orfordness.	Downs to the Isle of Wight.
£ s. d.	£ s. d.	£ s. d.	£ s. d.	7 ft.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
3 4 6 3 1½	2 15 3 3 3	1 18 9 2 3	3 13 6 4 7½	½	5 16 0 6 10½	5 5 9 7 10½	4 12 0 7 10½	3 15 0 6 3
3 10 9 3 3	3 1 9 3 1½	2 3 3 1 10½	4 2 9 4 7½	½	6 9 9 6 10½	6 1 6 7 9	5 7 9 7 9	4 7 6 6 3
3 17 3 2 9	3 8 0 2 9	2 7 0 1 9	4 12 0 4 7½	½	7 3 6 6 10½	6 17 0 7 4½	6 3 3 7 4½	5 0 0 6 3
4 2 9 6 10½	3 13 6 4 7½	2 10 6 4 7½	5 1 3 2 3	½	7 17 3 11 1½	7 11 9 9 3	6 18 0 6 10½	5 12 6 5 9
4 16 6 4 7½	4 2 9 3 9	2 19 9 3 3	5 5 9 9 7½	½	8 19 6 6 10½	8 10 3 6 10½	7 11 9 6 10½	6 4 0 5 6
5 5 9 4 7½	4 10 3 4 4½	3 6 3 2 9	6 5 0 4 3	½	9 13 3 9 1½	9 4 0 9 3	8 5 6 7 0	6 15 0 5 6
5 15 0 4 7½	4 19 0 4 9	3 11 9 1 10½	6 13 6 6 10½	½	10 11 6 9 3	10 2 6 9 1½	8 19 6 6 10½	7 6 0 5 9
6 4 3 4 7½	5 8 6 3 9	3 15 6 3 7½	7 7 3 4 7½	½	11 10 0 9 3	11 0 9 6 10½	9 13 3 6 10½	7 17 6 5 3
6 13 6 4 6	5 16 0 4 1½	4 2 9 3 9	7 16 6 9 1½	½	12 8 6 6 10½	11 14 6 7 0	10 7 0 6 10½	8 8 0 6 0
7 2 6 9 3	6 4 3 9 1½	4 10 3 5 6	8 14 9 6 10½	½	13 2 3 16 1½	12 8 6 17 6	11 0 9 6 10½	9 0 0 4 6
8 1 0 11 6	7 2 6 10 7½	5 1 3 7 4½	9 8 6 14 3	½	14 14 6 1 3 0	14 3 6 1 1 1½	11 14 6 1 3 6	9 9 0 15 6
9 4 0 18 4½	8 3 9 10 1½	5 16 0 6 4½	10 17 0 6 6	½	17 0 6 1 14 10½	16 5 9 1 12 7½	14 1 6 1 5 9	11 0 0 1 0 0
11 0 9 18 4½	9 4 0 1 3 10½	6 8 9 12 10½	11 10 0 13 9	½	20 10 3 1 7 1½	19 11 0 1 5 3	16 13 0 1 6 9	13 0 0 1 0 0
12 17 6 9 3	11 11 9 9 9	7 14 6 9 9	12 17 6 13 10½	½	23 4 6	22 1 6 1 7 7½	19 6 6 19 3	15 0 0 1 0 0
13 16 0	12 11 3 12 4½	8 14 0 9 7½	14 5 3 1 3 0	½		24 16 9 1 7 7½	21 5 0 19 4½	17 0 0 10 0
	13 16 0	9 13 3 9 7½	16 11 3 18 4½	½		27 12 0	23 3 9 19 3	18 0 0
		10 12 6	18 8 0	23			25 2 3	



# RATES OF PILOTAGE FOR THE RIVER THAMES,

As per Act 6th Geo. IV., cap. 125.

From	From	From		From	From	From
Moorings or London Docks, to Blackwall or Woolwich. vice versa.	Longreach to London. vice versa.	Longreach to Wool- wich or Blackwall. vice versa.	Draught of Water.	Gravesend to Longreach. vice versa.	Moorings or London Docks, to Gravesend. vice versa.	Blackwall or Woolwich, to Gravesend. vice versa.
£ s. d. 0 18 6 1 9	£ s. d. 1 7 6 1 10½	£ s. d. 0 18 6 1 9	7 feet & und. ½	£ s. d. 0 9 3 2 9	£ s. d. 1 7 6 3 3	£ s. d. 1 3 0 2 3
1 2 0 1 4½	1 11 3 1 4½	1 2 0 1 4½	8 ½	0 14 9 2 9	1 14 0 3 3	1 7 6 2 4½
1 4 9 1 4½	1 14 0 1 4½	1 4 9 1 4½	9 ½	1 0 3 2 6	2 0 6 2 9	1 12 3 2 3
1 7 6 1 3	1 16 9 4 7½	1 7 6 1 7½	10 ½	1 5 3 2 4½	2 6 0 4 7½	1 16 9 3 9
1 10 0 1 0½	2 6 0 4 7½	1 16 9 4 7½	11 ½	1 10 0 2 3	2 15 3 4 7½	2 4 3 4 7½
1 12 3 2 3	2 15 3 4 7½	2 6 0 4 7½	12 ½	1 14 6 2 3	3 4 6 4 6	2 13 6 4 6
1 16 9 2 4½	3 4 6 4 6	2 15 3 4 7½	13 ½	1 19 0 2 4½	3 13 6 4 7½	3 2 6 4 7½
2 1 6 2 3	3 13 6 4 7½	3 4 6 4 6	14 ½	2 3 9 2 3	4 2 9 4 7½	3 11 9 3 3
2 6 0 2 3	4 2 9 4 7½	3 13 6 4 7½	15 ½	2 8 3 2 4½	4 12 0 4 7½	3 18 3 3 7½
2 10 6 2 4½	4 12 0 5 9	4 2 9 4 7½	16 ½	2 13 0 2 3	5 1 3 4 7½	4 5 6 4 1½
2 15 3 2 3	5 3 6 6 3	4 12 0 5 9	17 ½	2 17 6 2 3	5 10 6 4 6	4 13 9 3 9
2 19 9 2 4½	5 16 0 6 4½	5 3 6 6 3	18 ½	3 2 0 2 4½	5 19 6 13 10½	5 1 3 11 6
3 4 6 2 3	6 8 9 9 3	5 16 0 6 4½	19 ½	3 6 9 2 3	7 7 3 13 9	6 4 3 13 9
3 9 0	7 7 3 8 4½	6 8 9 18 4½	20 ½	3 11 3 10 4½	8 14 9 13 9	7 11 9 13 10½
	8 4 0	8 5 6 9 3	21 ½	4 12 0 9 3	10 2 3	8 19 6 6 10½
		9 4 0	22	5 10 6		9 13 3

For intermediate Distances, a proportionate Rate.

Per Trip for the whole distance from Gravesend to London, and in proportion for any part of that distance.

For a Boat of a class carrying an Anchor of above 4 cwt. with a corresponding Tow-line. . . . . 2 2 0  
Ditto, 2 cwt. . . . . 1 1 0  
Ditto under 2 cwt. . . . . 0 15 0  
And for each Man's Service in those Boats, 8s. per Tide.

Employment of Boats, Anchors, &c.

Removing a Ship or Vessel from Moorings into a Dry or Wet Dock.

Under 300 Tons	300 to 600 "	600 to 1000 "	Above 1000 "
£ s. d. 0 15 0	1 1 0	1 11 6	2 2 0

In the River Thames above Gravesend.



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A New and Improved CHART of the BRISTOL CHANNEL; showing the whole Navigation from Trevoze Head in Cornwall, and St. Bride's Bay in Pembroke-shire; including the Smalls, &c. to Bristol and Chepstow: with enlarged Plans of the River Severn, showing the course of the Berkeley Canal to Gloucester, Milford Haven, Padstow & Ilfracombe Harbours, and Port Talbot New Floating Harbour. The whole carefully drawn from the late Surveys, by J. S. HOBBS, <i>Hydrographer</i> . Accompanied by a new Book of Sailing Directions .....	0	7	6
A New and Improved CHART of the ST. GEORGE'S and BRISTOL CHANNELS; showing the whole Navigation from Tintagel Head in Cornwall, to Glasgow, &c. on the British side, and from Tuskar to Bengore Head on the Irish Coast; with enlarged Plans of Liverpool, Holyhead, Carlingford, Ardglass, Larne, Campbelton, the River Clyde, and Lamlash. The whole carefully constructed from the best observations, and correctly drawn from the latest and most approved Surveys, and embellished with Views of the Land, &c. &c., by J. S. HOBBS, <i>Hydrographer</i> . Accompanied by an enlarged Book of Sailing Directions.....	0	12	0
A New and Improved CHART of the NORTH, WEST, and SOUTH COASTS of IRELAND, from the Saltee Islands to Bengore Head: with enlarged Plans of the Harbours of Waterford, Dunmore, Cork, and Valentia; the River Shannon to Limerick; Galway and Sligo Bays; the Bar of Moy, Killala Bay, and the Gola Islands. Drawn from the most approved Surveys and Observations, by J. S. HOBBS, <i>Hydrographer</i> . Accompanied by a Book of Directions, revised and corrected to the present time .....	0	10	6
A New and Improved CHART of the ST. GEORGE'S and BRISTOL CHANNELS, with the whole Coasts of Ireland; with enlarged Plans of the Harbours of Cork, Valentia, Waterford, Dunmore, Dublin, Kingstown, Lough Carlingford, Killough, Ardglass, Entrance to Lough Straugford, the Maiden Rocks, Port Rush and Gola Islands, Sligo Bay; also of Loch Campelton, in the Mull of Cantire, and Liverpool Bay. Drawn by J. S. HOBBS, <i>Hydrographer</i> . With Directions .....	0	10	6

ADDENDUM.

**MARGATE SAND.**—*Trinity House, London, 19th July, 1847.*—The eastern projection of Margate Sand having extended itself to the eastward, notice is hereby given, that the N.E. Spit buoy has been moved about  $\frac{1}{2}$  a mile E. by S.  $\frac{1}{4}$  S. from its previous position, and now lies in  $7\frac{3}{4}$  fathoms at low water, spring-tides, with the following marks and compass-bearings, viz.:—The high tower of Moro Castle, its width open west of Neptune's Tower, bearing S.  $\frac{1}{4}$  W.; Powell's Belfry, twice its width open west of the Preventive Station in Westgate Bay, S.W.  $\frac{1}{4}$  W.; North Foreland lighthouse S.  $\frac{1}{2}$  W.; east buoy of Margate Sand S. by E., southerly; and North Spit buoy W. by N.  $\frac{3}{4}$  N., distant about  $2\frac{1}{2}$  miles.

—(Page 55.)  
[THAMES.]

By order,

J. HERBERT, *Secretary.*

